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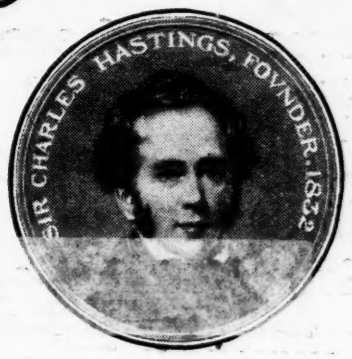

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

WITH SUPPLEMENT.

No. 3213. SATURDAY, JULY 29, 1922. Price 1/3

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President's Address on Brain Surgery.

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British Medical Association.

NINETIETH ANNUAL MEETING, GLASGOW, 1922.

President's Address

ON

BRAIN SURGERY.

BY

SIR WILLIAM MACEWEN, C.B.,

REGIUS PROFESSOR OF SURGERY, UNIVERSITY OF GLASGOW.

SPEAKING from the Presidential Chair my first words must be words of welcome on behalf, not only of the large body of the profession in and around Glasgow, but also of the many citizens who have joined us and who have wrought hard to express their good feeling towards our colleagues on the occasion of the Annual Meeting of the British Medical Association.

We welcome you to the city of Glasgow, the second city of the Empire, a city which within a radius of thirty miles is surrounded by half the population of Scotland.

Glasgow is governed by a civic corporation—a parliament of seventy members, composed of men of light and leading who devote their time and attention to the many problems of social life. They have blessed the city with one of the finest water supplies, obtained from a highland loch amongst the heather-clad hills, which pours its pure water into every home in the city, bringing an unlimited supply to rich and poor alike. One of the greatest sewage schemes has been carried out so successfully that the vast population is maintained in excellent sanitary conditions. Enteric fever has now no home in Glasgow. If the purity of the atmosphere is not all that it should be there are those among the corporation who are zealously searching for practical means of attaining that end. Nor can we doubt that those who by their foresight, energy, and indomitable perseverance brought the ocean to the feet of St. Mungo will in due time succeed in purifying the atmosphere. Of its further efforts much will be seen in the Health Exhibition in Kelvin Hall, given by the corporation.

Glasgow is one of the most cosmopolitan of industrial cities, and in the application of science can point with just pride to the multifarious industries which have here made a home. It is a literary as well as a great commercial centre.

THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association—now holding its ninetieth annual meeting—is without exception the largest professional association of the Empire, and carries out the principle of voluntary combination for the consideration, not only of its own affairs, but also the readjustment of objects which are humane and public-spirited. It has also been the means of disseminating all that pertains to the science and art of medicine. It has about 24,000 members, drawn not only from the United Kingdom alone, but from all over the world wherever the British Empire extends.

It is no easy matter to succeed to the position filled by the long line of brilliant Presidents of the British Medical Association, amongst whom Sir Clifford Allbutt, Regius Professor of Physic in Cambridge University, and David Drummond, Vice-Chancellor of the University of Durham, in consecutive years filled the office with great distinction.

We have the honour to-day of receiving many distinguished colonials and representatives from overseas—men who are representative of those chivalrous peoples who abandoned their homes and callings and the many that were dear to them and flocked to the standard of the Mother Country in her struggle for the liberty of the world. We are also pleased to have associated with us to-day some of our American—we used to call them cousins, we now call them brothers—brothers who are to aid us by their fresh views on many topics of professional and social affairs. Last, but not least, we extend a very hearty welcome to the distinguished Continental savants who have honoured us by coming to share in and to enlighten our debates.

THE UNIVERSITY.

The University, in which we have been courteously permitted by the University Court to meet, is 471 years old, being founded in 1450 by Pope Nicholas V. With the exception of St. Andrews, it is the oldest university in Scotland. It has had a long roll of scholars, theologians, philosophers, scientists, and abstract thinkers among its professors and alumni, and one could profitably and fondly occupy many hours in reviewing the work they accomplished while playing their part in the history of the world. The exigencies of the hour, however, make it only possible to take a momentary glimpse, in passing, at a few of them.

Joseph Black.

Joseph Black, the greatest genius of his century, was an alumnus of Glasgow University and a pupil of Cullen. He was elected Professor in that university in the middle of the eighteenth century. In his Glasgow University lectures in 1757–58, he enunciated the doctrine of latent heat. The laws of specific heat and latent heat were discovered in Scotland. By a stroke of genius Black impeached the authority of the senses and idealized matter into force. In his investigations into the properties of heat he showed that heat ought to be removed from the jurisdiction of the senses, as heat was supersensual. Though we experienced its effects, we could only conceive of its existence. Latent heat baffles all our senses. While our feelings make us believe that heat is lost, our intellect shows that it still exists.

The process of reasoning adopted in this discovery had far-reaching effects, not only in natural philosophy, but in many other fields. An extension of it led to the recognition of the analogy of heat and light and much else. Einstein's theory of relativity is also founded on the impeaching of the evidence of the senses.

The flights of philosophy and the abstract reasoning had also a direct and practical issue. A model engine, which may still be seen in the library of the Hunterian Museum in Glasgow University, was used by Black in his lectures for the purpose of demonstrating the conversion of matter into force. The pent-up energy in a solid block of ice, by the application of heat, was converted first into liquid, then into vapour, and the vapour into energy which drove an engine—a primitive though non-productive steam engine. It was while repairing this model that James Watt, by the application of the economy of heat and the conservation of energy, invented the separate condenser that transformed the laboratory model into a practical machine capable of doing work.

The steam engine has transformed the world, adding to its material prosperity and being the greatest civilizing agency ever introduced. It would be an insult to the intelligence of Watt to deny that his work in that and other fields had been uninfluenced by the transcendent genius of Black, with whom he was for a short time associated.

Adam Smith.

Adam Smith, while Professor in Glasgow, delivered lectures in the University, containing the fundamental principles afterwards elaborated and published in his *Wealth of Nations*, a work which became the creed upon which the policy of this great nation was for many years founded, and which at that time added so much to its material prosperity.

The Brothers Hunter.

The brothers Hunter, the great anatomists and physiologists, we claim as Glasgow men. William Hunter, the elder, was an alumnus of our university. He was the better educated, the broader minded, and in some respects the greater of the two, though he has been overshadowed by his more brilliant brother. His anatomical and pathological collection is very fine, and contains some very beautiful preparations made by his own hand or under his direction. His work on the gravid uterus alone entitles him to a niche in fame, and is so true and so complete that it forms the basis of the text on that subject to the present day. William was otherwise a great collector and accumulator of treasures in art, in books, and in coins, as well as in comparative anatomy and pathology.

John Hunter was educated professionally by his brother, and through him was vicariously a student of Glasgow University. John Hunter owed his existence, as we know him, to his brother William, who instructed him in anatomy, pathology, and surgery. Not only did he do so, but, by making him collaborate with him in his penetration into the mysteries of nature, he taught him how to think and placed him on the rails of original research.

Thought is the creator and vivifier of all human affairs, and it is the progress of ideas which ultimately determines the progress of the world. Not only by his careful and persistent research, but by the boldness of his ideation and his philosophic methods, John Hunter has been placed in the same rank as Aristotle, Bichat, and Harvey. Yet during his life he stood alone—as possibly all such men must. He never had more than twenty students at his lectures, and at the beginning when a solitary student presented himself he had to ask the attendant to bring in the skeleton so that he might address them as "Gentlemen"!

At his death John Hunter's collection numbered 10,000 preparations illustrative of researches covering the whole range of the animal kingdom. That collection was given to the Royal College of Surgeons of England, and right royally those Englishmen have preserved and enhanced the donation, adding fresh increments and vivifying it by constant service. It has become one of the noblest museums of its kind.

William Hunter gave his museum and all its treasures to the University of Glasgow and left money to erect a suitable building for it.

The two brothers Hunter came from the farm of Long Calderwood, near East Kilbride, a few miles from Glasgow. On making a pilgrimage to the vicinity I called one day at a small cottage on the farm on the door lintel of which were the initials J. H. and a date, and asked the inmates whether they had knowledge of the Hunters who used to live at Long Calderwood, two of whom were great men. These folk had never heard of them! One of the inmates, a lady ninety years old asked—"What hae they been doin' that ye are speerin' for them?" *Sic transit gloria mundi!*

Lister.

Lister introduced and perfected the antiseptic treatment of wounds while he occupied the Regius Professorship of Surgery in the University of Glasgow, founding his theory on the researches of Pasteur on fermentation, believing that inflammation might be due to a somewhat similar process. How antiseptics revolutionized practice all over the world does not require to be repeated here.

After spending nine of the most active years of his life and those fullest of scientific fruition, Lister passed quietly away from Glasgow, without public recognition of his services, the general body of citizens being unaware that a great scientific achievement had been wrought in their midst. It was long afterwards, when all the world wondered, that Glasgow became alive to what it had possessed—and lost!

Kelvin.

The achievements of Kelvin the great physicist are too vivid and fresh to require reminder at this time.

BROADER VIEWS OF LIFE.

My late colleague, Sir William Gairdner, who was President of the British Medical Association in 1888, considered, in one of his erudite addresses, the Physician as a Naturalist; to-day I have to invite attention to the extension of our studies in the same direction.

Do we concentrate our studies too much on human phenomena to the exclusion of life as a whole?

Our so-called divisions of nature are purely arbitrary conveniences, having no existence except in our own minds. In the material world there is neither break nor pause. In a sense all matter is living and the term "death"—though correct as applied to individual existence—is a mere expression significant of transference into fresh forms of life.

We are but a bit of nature, and everything pertaining thereto must have a bearing on humanity. The history of the rocks, which are force in static form, affords much interesting material for the study of evolution. Aided by the disintegrating effects of myriad germs, the rocks crumble when in contact with the atmosphere, and the impalpable dust produced therefrom is converted by the action of other forms of micro-organisms into pabulum suited for plant life. The rootlets of the plants display their selective faculty on the material thus prepared. The matter of which rocks are composed, when dissolved and held in solution, is used for various purposes in the animal economy. The coral insect abstracts from the ocean calcareous matter which it deposits round itself and which collectively forms the solid structure producing the submarine basis of many islands in the warmer seas.

In higher forms of life specialized cells, the osteoblasts, exercise their selective influence in abstracting from the blood stream the lime salts, which they deposit in an area in their immediate vicinity over which they have control, and in doing so arrange themselves in ordered sequence, carrying out the architectural design of bone construction according to hereditary law.

Comparative anatomy and physiology, much as they have been studied, still present many fields which have not been traversed, and from which a discerning eye may reap an abundant harvest—rich in itself, but also fraught with interest and of service in the elucidation of problems in the life of man.

Nor is it necessary to go far afield to begin such study. The lion, the elephant, and the duck-billed platypus are of great interest in themselves; but who knows about the fauna and flora of the dermal coverings and hirsute appendages of the ubiquitous mouse, which perseveringly installs itself in and near the haunts of man, and even penetrates the family circle?

What man thinks of the mouse may be summed up in the form of means of destruction—traps, gins, cats! What the mouse thinks of man would not flatter his vanity. The mouse regards man as an impotent animal who issues threats of destruction, and makes the most clumsy, short-lived attempts to carry them out; as a pusillanimous antagonist, a creature who for centuries has waged war on mice—with no effect! They are still as numerous, as bold, as intelligent, as agile, as beautiful, and as destructive as ever!

The "wee sleekit cowrin' tim'rous beastie" to this day pursues the even tenor of his way. No other animal has such opportunity of carrying disease into the domestic hearth. Mice of one kind or other attend the harvesting of grain in the field, follow it to the corn-rick or barn, infest the stores, mills, or bakeries, and are ready to attack the flour when made into bread. They go over the cots of children, diseased or healthy; they run from house to house; they lick every used plate, cup, or saucer on which there is a particle of sugar or crumb of bread. The mouse is a carrier of disease—but what are its pathological records? Is it subject to contagious diseases, and if so how does it disseminate them? Is it attacked by sarcoma or cancer, allied to that which attacks man? Even for the protection of humanity, apart from the intrinsic interest of the study, the mouse and its ways are worthy of the searchlight of scientific investigation.

Microbiology is only in its infancy. There are myriads of germs surrounding us of which we know little, and study of which offers fruitful fields for scientific research. The organisms contained in food, which are transmitted to the alimentary canal, are of many varieties, some benign and useful for the digestion, and others malignant and hurtful. The flora of the colon is a great field of study, and while there are organisms present which are not conducive to health, there are others which are necessary to the completion of digestion. The colon is an excellent incubating chamber, and instead of allowing it to grow weeds we ought to endeavour to sow in it plants which would be of use in the way of promoting digestion and in producing chemical compounds of service to man and combative of the weaknesses and diseases to which he is liable. This might be improved by introducing new organisms which would grow in the colon garden and produce therein beneficent cultures giving forth their enzymes and vitamins—inhibitory to the weeds in the canal and to their products in the system. Is it too much

to hope that such gardening, were it carried out successfully, would aid in the prevention of appendicitis, possibly might influence beneficially other diseases, such as arteriosclerosis and rheumatism, and might even have an effect in inhibiting the deposition of carcinoma? A healthy colon contributes to longevity and a happy state of mind.

Our habits of thought are so interwoven that speculative or scientific inquiry introduced into one field influences and affects other fields of cognate thought. It was research into fermentation of the juice of the grape, instigated for utilitarian purposes by the wine growers of France, that led to the introduction of the antiseptic system of the treatment of wounds. While conducting in a chemical laboratory an abstract research into the properties of nitrous oxide gas it was the coincidence of toothache in the person of the investigator that led Humphry Davy to the discovery of general anaesthesia, and which he advised for the prevention of pain during surgical operations. Though this discovery was published broadcast in the works of Sir Humphry Davy, so irreceptive were the people of the period, especially the members of the medical profession, that for forty years that great discovery remained dormant—neglected and unused. Think of the inhabitants of the world, suffering for forty years pain and anguish that could have been prevented had the discovery been utilized!

The latter is but an illustration of many discoveries made by our own people which, after announcement, have fallen on deaf ears and have not been used until other nations have heard of them and have discerned their potentialities and turned them to practical account. Is this one of our national defects or diseases? Does it arise from want of scientific training or habits of thought among the people? Whatever it is, like our diseases, it is very costly. The nation not only loses prestige, but in one noted instance—the neglect of the utilization of the discovery of the basic salts—the nation has lost many millions a year; had we utilized it and all that followed therefrom in extended chemical research, we would have been better prepared for the great war and it would have aided greatly our economic position to-day.

Syphilis and Tubercle.

Syphilis and tubercle are both germ diseases which are still prevalent and sap the strength of the people. Is everything being done that ought to be done to stop their ravages?

Now that the Government, and the laity, have been educated by the medical profession to the fact that syphilis is a preventable germ disease, and can be stamped out by means made known to them, if this generation does not stop the disease it commits a crime against posterity.

With tubercle the problem is much more complicated, as it is a disease common to man and certain of the lower animals, and great efforts are being made by the sanitarians to combat the conditions leading to its production.

BRAIN SURGERY.

The Evolution of the Knowledge of Brain Function.

In my student days physiologists taught us that the brain acted as a whole, without recognition of localized areas within it endowed with specialized function.

In 1861 Broca demonstrated at the Anthropological Society in Paris the brain of a man who had for forty-one years lost the faculty of speech. The specimen showed softening of the third frontal convolution on the left side. Broca deduced from that and other observations that the base of the third frontal convolution on the left side was the seat of the faculty of articulate language, and further advanced the suggestion that there were probably other areas in the brain connected with localized function. Broca's discovery was iconoclastic; it shook the notion entertained regarding the unity of brain function to its foundation. Clinicians such as Charcot and Pitres were generally aware that lesions of one side of the brain were often associated with paralysis of the opposite side of the body; and Hughlings Jackson suggested that unilateral convulsions indicated in the same way disease of the opposite side of the brain. In 1869 Hughlings Jackson stated that, in his opinion, there were many limited areas in the brain connected with distinctive functions, founding his opinion on clinical experience and direct observation of pathological facts. He also foreshadowed the existence of higher psychic centres.

The views of Broca and Hughlings Jackson were subjected to much controversy and doubt. A new method of investigation was introduced by Fritsch and Hitzig in 1870, who applied the faradic current to the brains of dogs, and found that in response to such stimulation of certain localized areas co-ordinated movements were evoked in distinct groups of muscles on the opposite side of the body. Ferrier published in 1873 the results of his memorable research on the brains of the higher apes, mapped out definite areas (chiefly in the central convolutions) which responded to faradic current, producing definite movement of groups of muscles on the opposite side of the body, differentiating areas for the various parts of the face and upper and lower extremities.

Whether deductions made from the localization of function in the motor cortex of the brain of the lower animals were applicable to man had yet to be proved. This I had the opportunity of doing, by direct observation of the effect of injuries, especially those of a limited character. By the application of this knowledge and the deductions drawn therefrom, cerebral neoplasms were diagnosed, and the restoration of function after their removal aided in confirming the localization.

Opportunities afforded for observation on man convinced me that both in Broca's lobe and in the ascending central convolutions there were areas in the brain with specialized functions, and by deduction that the same existed in other parts of the brain.

In the early seventies numerous occasions presented themselves for noticing the effects of interference with the brain of man, and it was early apparent that injury to the ascending convolutions induced motor disturbances of the opposite side of the body ending in paralysis, when due to pressure or destruction of brain tissue; and to spasms when due to irritation of the cerebral cortex. Especially were these convincing when cases of limited lesion were followed by monoplegias on the opposite side of the body.* These were relieved by operation, the function of the part being restored by the removal of the lesion from the brain. This was also demonstrated in hemiplegias, due in some cases to extra- and in others to sub-dural haemorrhage exercising pressure on the brain, and the speedy recoveries following their removal; whereas, in the intra-cerebral haemorrhages in the same regions the recoveries after removal were protracted and incomplete in proportion to the damage done to the brain tissue itself. Such traumatisms were not always accompanied by external evidence of injury, and where external evidence of injury did exist it did not always correspond to the damaged part of the brain.

When motor function was interfered with by pressure it was found safer to operate over the area of the brain whose function was implicated than to take external injury of the scalp or skull as a guide. Lesions of an idiopathic kind, when they presented themselves with disturbance of localized cerebral function, were exposed in the same way and where practicable were removed. Several of these idiopathic lesions were found to present more definite symptoms of their localization than most traumatic lesions. Thus, when an abscess of the brain presented itself with symptoms of motor aphasia, it was diagnosed to be located in or near the base of the third frontal convolution, where it was found; and when a tumour with multiple symptoms indicative of primary involvement of the anterior part of the left frontal lobe with secondary extension to the ascending frontal convolution presented itself, the diagnosis, though more difficult, was made with sufficient approach to accuracy to enable the tumour to be located and removed by operation (1879), giving complete relief to the symptoms and curing the patient. There were several tumours in the motor cortex and one in the paracentral lobe diagnosed (in 1883) and operated on. All of them were diagnosed and the neoplasm successfully removed from the brain with the restoration of function. One case, described as a focal lesion in the motor cortex from which blood and disintegrated tissue were removed, was probably a disintegrated glioma into which haemorrhage had occurred—though at that time the appearances of disintegrated gliomas had not been sufficiently recognized.

* As a student of Glasgow Royal Infirmary I was given the means of studying lesions in the base of the third frontal convolutions producing motor aphasia. Two such cases were in the medical wards during these years, the lesion afterwards being verified by the autopsy. In 1873 a man was seen who had received a blow from a sharp pick over the parietal region of the right side of the skull which had driven in a small portion of the inner table of the skull. He suffered from spasms of the left hand and forearm followed by paresis. The depressed bone was found to have penetrated the dura and was lodged in the middle part of the ascending frontal convolution. It was removed therefrom along with external débris. The spasms ceased and the paresis disappeared in a few weeks. Three other cases of injury to the brain of a limited nature were seen in the early seventies which verified cerebral localization—one from the blow of a pointed knife, one from glass, and one from delf; all had penetrated the skull and dura, and small portions had lodged in the brain—producing localized lesions.

At this period Ferrier visited the Royal Infirmary, making inquiry into the function of the brain in man. The question was raised as to whether the information laid before us by Ferrier in his work on the brain of the chimpanzee had borne fruit in our operations on man—especially as to whether the ascending convolutions in man had been found to correspond in function to the analogous parts in the brain of the chimpanzee. To this question an affirmative answer was given, and it was suggested that a demonstration such as we could give would be welcomed by the scientific world, where confirmation of these points was eagerly awaited.

In the year 1888 I had the opportunity of addressing the British Medical Association on the subject of brain surgery, and then presented lesions from many different regions of the brain which had been diagnosed by localization of function and had been removed by operation.

In the years that followed much work was done by surgeons toward the elucidation of the functions of the brain, the pathology of the lesions and their mode of removal. Hughlings Jackson, Mott, and Gowers continued to give inspiration from the clinical side. Ferrier and Horsley and Beevor did much painstaking investigation on the brains of a variety of animals, and their results were of much value. Horsley, Godlee, Ballance, and many of their London colleagues followed these by brilliant operations on man. Horsley was indefatigable in his research work, and everyone regrets that in his devotion to national duty his life was sacrificed on the burning plains of Mesopotamia. In these early days Ferrier in London was the *vis a tergo* to many of the surgeons and helped to stimulate and give them confidence.

In America there was likewise a vigorous growth of cerebral surgery, and those who took up the subject enlightened it, such as Allan Star, my old friend Keen—the youngest man in America—Harvey Cushing, and many others, all doing valuable and accurate work. D'Antona of Naples, Durante of Rome, Lucas-Championnière of Paris, Bergman and Krause of Berlin, were prominent at the earlier period of this evolution.

Sensory Phenomena—in the Post-Rolandic Convolutions.

From direct experiment on animals it was at first announced that both pre- and post-Rolandic convolutions were concerned in the production of movement, and were included therefore in the motor area. While accepting tentatively this conclusion founded on direct experiment, cases arose in man in which sensory impressions were the only phenomena produced by lesions in the cortex of the post-Rolandic convolutions. In other instances the lesion produced primarily sensory impressions, yet from extension forward the floor of the Rolandic fissure became involved and motor symptoms developed.

Such cases were recorded by me in 1888: in one of them a protospasm of the hallux was preceded by sensory impressions—what was described by the patient as a "curious sensation"—and pain in the great toe. The pain in the great toe was always present, but occasionally it became so severe as to make the patient cry out. The lesion was found mainly in the upper portion of the ascending parietal convolution; a smaller one of more recent origin was discovered in the upper part of the ascending frontal convolution, and this was the cause of the later motor spasm of the toe.

A somewhat similar instance appeared in another case in the same brain centres some years after. In this a sensory impression in the right foot heralded the invasion of the upper parietal convolution of the opposite side. The lesion was removed in a wedge-shaped portion of brain tissue. The pain and previous discomfort in the foot entirely disappeared after the operation, but there was instead a numbness or—when the foot was left to itself—a "want of precise sensation of how to place the foot." Automatic associated movements, such as walking, were easy on a pavement, and when the patient concentrated attention on the movements of the foot they could be made according to will. After the first three months the patient walked very well, though she said there was still a trace of the defect "in the feeling" of the foot.

In several cases neoplasms and traumatisms in the post-central convolutions produced sensory impressions in various parts of the body without motor phenomena. In some the sensory impressions were associated with motor phenomena—monospasms or convulsions—and others with paralysis. In the majority, however, the lesions in the motor area involved both ascending convolutions, and the motor phenomena, being more obtrusive, were more noticed.

It was evident that a discrepancy, which required explanation, existed between the clinical data in man and those of direct experiment on the chimpanzee. Could it be due to the inability of the lower animals to express their sensations in language intelligible to man that the sensory phenomena were missed? Even were it so, it would not account for crediting the ascending parietal convolution with the function of producing motor phenomena when faradically stimulated.

From such clinical experience one was therefore prepared to accept the conclusion drawn from Sherrington's notable research on the brain of the higher apes in which, contrary to the deduction of other experimenters, he found that the ascending parietal convolution did not respond by production of movement when stimulated faradically. This was a comforting conclusion to the clinician, as it brought direct experimental research into line with the observation on man, and confirmed the latter in a way which would have taken many decades to have made *positive* by clinical observation alone. He showed that the ascending frontal and the floor of the fissure of Rolando alone responded to faradization, producing movements of the affected parts on the opposite side of the body. In clinical work the invading lesion does not always limit itself to special areas of localized function. When sensory symptoms, which do not prevent the use of the limb, appear primarily, they are apt to be overlooked or their importance minimized, and when by extension of the lesion into the pre-Rolandic area motor phenomena are presented, the sensory are apt to be overshadowed.

The cyto-morphology of the anterior central convolutions differs from that of the post-central. The Neister-Betz pyramidal giant cells exist in the anterior convolutions and not in the post-central. This may be made use of in examining specimens taken from the brain by operation, but cannot contribute to the primary diagnosis. The difference in the architectural arrangement of the cells in the two ascending convolutions would *a priori* indicate difference in function.

The sensory phenomena exhibited when other regions of the brain have been the seat of lesions have been previously recorded by me, and subsequent experience—by many others as well as myself—has abundantly borne out the conclusions there arrived at. The word deafness and psychic blindness have been particularly illustrated in one patient who had a lesion of the posterior area of the upper temporal convolutions with extension to the angular gyrus. This patient heard and saw physically, but did not comprehend what he saw and heard. "Hearing he heard not, and seeing he saw not." He asked for a drink and would persist in asking for it. Though the nurse had duly presented him with the drink and requested him to take it, yet he did not take it, but again repeated his request. When, however, his sense of touch was brought into play by placing the glass on his lips, he at once perceived and took it into his own hands and drank. When the lesion was removed he saw and heard correctly and appreciatively and tried to explain his previous difficulties.

Lesions in Silent Areas recognized by Distant Symptoms.

Though there are some areas of the brain whose functions we do not yet know sufficiently to enable us to determine when they are invaded by small neoplasms, yet when these neoplasms increase in size sufficiently to involve adjacent parts, by pressure or otherwise, the implication of these parts, in definite order, aids in indicating the position of the lesion in the silent area. Take, for instance, the invasion of the temporo-sphenoidal lobe by large neoplasm.

Localizing Symptoms of Large Abscess and Neoplasms in the Temporo-sphenoidal Lobe.

While localizing symptoms of a small abscess situated in the middle of the temporo-sphenoidal lobe above the tegmen are still insufficient to enable one to make a definite diagnosis, the symptoms occasioned by a large abscess (or tumour) in that region are quite pronounced. This symptom complex of large lesions in the temporo-sphenoidal lobe was pointed out by me in 1884 and again in my address in 1888. Since then it has borne the test of further experience. The symptoms are due to pressure extending upwards from the temporo-sphenoidal lobe to the adjacent structures and affecting them in ordered sequence. They are, first, a passivity over the face on the opposite side from the lesion, which as the lesion extends becomes a definite paresis, and may ultimately pass

into paralysis. The facial paralysis is, however, like that from all lesions of the facial centre of the cerebral cortex, not complete, as the power of emotional expression is retained to a slight degree, and the patient has the power of closing the eyelid by an effort of will, though it remains partially open during sleep. This is of importance as, in many cases where the temporal bone is affected, facial paralysis is present on the same side as the lesion, and as it arises in such a case from damage to the nerve trunk it is complete. The power of emotional expression is not retained in the upper part of the face.

The arm on the opposite side from the lesion becomes affected with paresis after the involvement of the face, and it may become completely paralysed—though in abscess it is seldom allowed to reach that stage. The leg is not affected.

Coincidentally with the facial paresis, and sometimes preceding it, there is dilatation of the pupil on the *same* side as the lesion, along with a degree of ptosis when the neoplasm is large. The pupil on the same side as the lesion is affected early, but at first so slightly that the degree of dilatation may easily be missed unless specially looked for and both eyes tested for accommodation. It soon becomes dilated, however, and very sluggishly responds to light and accommodation, and latterly it becomes fixed—stable mydriasis. The ptosis is usually very slight, and may be absent. The explanation of these phenomena is simple if one looks to the contour of the cavity which contains the temporo-sphenoidal lobe, which elsewhere has been described by me as a "box without a lid"—so that the way pressure from within can be relieved is upwards, and consequently the motor cortex becomes affected, while the third nerve is caught by pressure against the posterior clinoid process.

The same symptom complex was found by me to accompany a tumour growing in the temporo-sphenoidal lobe and displacing the brain tissue upwards.* The symptoms succeeded one another very slowly but in perfect sequence.

The varieties and characteristics of cerebral tumours are now well known. We have the simple subdural meningeal fibromata which exercise pressure on the brain and which are so easily removed—of which this is a specimen [tumour shown]. It was forcibly ejected so soon as the dura was opened, the cerebral pressure within speeding the parting guest. At the other extreme we find the sarcomas of the meninges and gliomata of the brain, which are both often difficult to eradicate. It would be impossible to go into these cases in series within the limits of this address. Attention is, however, drawn to one or two cases illustrating special points.

The size of the tumour of the brain ought not alone to determine the question of removal. The smaller the tumour the greater the credit in diagnosing and removing it, as extent of invasion and the pressure effects therefrom will be the less. The larger the tumour the greater is the destruction of brain tissue and the greater will be the encroachment on the membranes and cranial walls necessary to give relief. One ought not, however, to be deterred from operating on a large tumour merely on account of its bulk, as in most cases the opening of the cranial walls will at least give relief to symptoms and often will retard or prevent blindness ensuing upon optic neuritis with choked disc. Some of the larger tumours are amenable to removal with good results, as, though large, they are of a nature which lends itself to easy removal, because the tumour has undergone degeneration. After such operation many patients have experienced relief of symptoms and restoration of function. The following are examples.

A Glio-sarcoma of Large Size occupying the Fissure of Sylvius: Removal.

As an instance of this kind, take the case of a young man of 18 years, who had pressure symptoms for over two years before coming under observation. When seen by me he had inequality of the pupils, the left being dilated and fixed, and there was a degree of ptosis of the left eyelid. The sight was markedly diminished from choked disc and nerve atrophy. He would probably have had at an earlier period partial hemianopsia, but that could not now be determined.

There was marked paralysis of the right side of the face and paresis of the right arm which had come on subsequently to that of the face. There was slight motor aphasia and also psychic blindness and a degree of psychic deafness. The general symptoms of brain pressure were marked. The symptoms pointed to a tumour of large size in the fronto-temporal region involving the central convolutions. Percussion over that area elicited a differential "hollow" note.

The temporo-central region was freely exposed, showing flattened cerebral convolutions of a yellowish discoloration. There was no brain impulse to sight or touch. The cerebrum was under much pressure, and though the aperture in the membranes was large the cerebrum bulged considerably beyond the limits of the wound. On deep palpation a slight degree of semi-fluctuation was detected. An incision into the brain itself, half an inch in depth, allowed the exit of a gelatinous amorphous material which, on first opening, was for the most part ejected with considerable force. The remainder had to be removed by spoon. The walls of this large cavity were very thin and friable and broke on removal.

When the tumour was dissected off the whole length of the Sylvian fissure with its vessels lay exposed, the tissues being flattened. The bases of the central convolutions were fused and crowded together so as to be barely recognizable. The island of Reil was not visible—whether it had been destroyed in the growth or had been pulped by pressure was a question. The temporo-sphenoidal lobe was much compressed and its convolutions fused together.

The structure of the tumour, judging from the fragments secured, was that of a glio-sarcoma which had undergone extensive cystic degeneration. It had probably sprung from the upper convolutions of the temporo-sphenoidal lobe and invaded the Sylvian fissure under the island of Reil and pressed the various convolutions aside. It had exercised forward pressure so as to implicate the third frontal convolution or the fibres therefrom, pressed the third nerve against the posterior clinoid process, and probably affected the chiasma. It occupied such a large space—from the posterior part of the temporal forward to the frontal lobe and upwards into the fissure of Sylvius—that one feared the effect of removal owing to its bulk. The patient, however, after recovering from the immediate effects of the operation, rapidly became conscious, and was greatly relieved that his headache and pain had vanished. The paralysis and paresis of the affected parts lessened after the first week and gradually disappeared. At the end of six weeks he was able to walk well and use his arm freely, the paralysis of the face having also cleared away—all but a slight passivity on smiling. The sight, however, did not recover, the atrophic changes in the nerves having been too pronounced. With this exception he lived well for six years, was able to take walks in the country every day, and had commenced typewriting and braille and music. He had no recurrence of the tumour formation. Death was due to what was reported as a severe attack of influenza with pulmonary trouble.

Deep-seated Tumour situated in the Conducting Sensory and Motor Paths of the Left Hemisphere, and involving the Lateral Ventricle.

The patient, whose powers of introspection were well developed, graphically described her sensations at the early period of her illness; the following is a summary:

She had a period of malaise lasting several months, toward the end of which she became aware of a "peculiar" sensation in the right hand, which extended somewhat up the right arm. At the early period, notwithstanding this sensation, she could use the hand "quite well." For nine months this sensory sensation was the only symptom. Then she became aware of defective appreciation of the size, form, and weight of objects touched by that hand, and somewhat later the astereognostic and baric sense were found to be defective. Tactile sensation was defective as far as the elbow. Afterwards the fingers and hand became stiff, though she could "make them move." A slight spasm was found in them, and almost coincidently the muscles of the face and those of the leg on the same side became affected with rigidity.

A year after the preliminary symptoms she had a convulsion described as general, in which she lost consciousness. In it the whole body was described as being arched backwards. Further seizures occurred at long intervals. She was unconscious in them all and the body was arched backwards in the severe ones.

There was a gradual extension of impaired sensory function to the leg and face—apparently simultaneously—though these were not so markedly affected as the arm. At a later stage tonic spasms extended to both leg and face, though in the leg it was more marked than in the face.

During all that period her mentality was clear. She had what she described as a fullness in the head, but no headache. Her sight was good and there was no optic neuritis. She had neither vertigo, sickness, nor vomiting. Gradually the motor phenomena predominated over the sensory, the tonic spasm in the arm and leg became pronounced, especially marked in the former. She could neither walk nor stand. Ultimately, about two years after the onset of the illness, she became unconscious, with involuntary evacuations. At this very late stage the friends consented to operation.

The history pointed to an extensive slow growing neoplasm situated in the deeper parts of the brain, involving the sensory and also the motor tracts issuing from the ascending parietal and frontal convolutions. The degree in which the sensory symptoms prevailed at the beginning of the case, and persisted throughout, indicated the posterior central convolution or its conducting paths as the parts primarily involved, and the convulsive movements which ultimately—occasionally—showed themselves were evidence of extension of the irritation to the anterior ascending convolutions, though the opisthotonic arching of the back described in the convulsion indicated involvement of the parts adjacent to the lateral ventricle.

The neoplasm had to be looked for in the conduction paths of the posterior and anterior central convolutions, the former connected with the lemniscus, the latter with the corona radiata. The size of the neoplasm was so considerable as to involve both these parts.

* Wernicke has subsequently also drawn attention to the affection of the pupil—dilatation and ptosis consequent on pressure on the trunk of the nerve on the same side.

In this unconscious state operation was performed, a large portion of the brain being exposed to give room for manipulation, the centre of the opening being over the ascending parietal convolution. The relation of the dura to the skull was normal and there were no adhesions to the pia. The brain substance and its pia matral covering were possibly somewhat paler than usual. Otherwise the cerebral surface was normal.

An incision was made into the brain substance in line with the fibres from the sensory arm centre—ascending parietal—so as to divide as few of them as possible. At the depth of an inch from the surface the instrument came in contact with a firm neoplasm markedly different in consistence from that of the surrounding brain. Further investigation showed that it was an elongated mass lying obliquely from above downwards, forwards, and inwards (mesially) toward the base, traversing the fibres passing toward the optic thalamus, and involving those of the corona radiata.

The lateral ventricle was freely exposed (a gush of brown-coloured fluid accompanying the opening), the neoplasm involving the external wall and being adherent to the choroid plexus, from which it had to be separated by ligature. It probably interfered by pressure with the internal capsule. It was difficult to remove, requiring, as many of these deeply seated tumours do, delicate manipulation, restraint of force, guided by intensive tactile sense. Several times during the procedure the pulse and respiration gave ominous warnings. For ease of manipulation in the confined space and to lessen the disturbance to the brain tissue during removal the tumour was divided into three pieces, gently raised, and its vascular connexion ligatured. These three pieces measured, after hardening in spirit: first piece, 2¼ by 1¼ in.; second piece, 2¼ by 1¾ in.; third piece, 1¼ by 1¾ in.

It was seen to consist of a fibro-endothelioma with slight encapsulation, some of the cells being larger and suggesting beginning of malignancy.

The external parts were carefully replaced. Owing to the fact that the greater part of the manipulation for the removal of the tumour had taken place in the brain substance, the pia matral investment being left intact, and also to the fact that the removal of the tumour mass had relieved the tension, the edges of the wound in the pia mater came into close apposition like a linear scar—a great point in the prevention of cicatrices becoming adherent to the dura. The dura matral covering was also ample and was carefully readjusted.

After the operation the breathing, which had previously been stertorous, became normal. Four hours after the patient wakened from sleep and it was found that she had recovered consciousness, asking where she was and how she had come into the nursing home. Her curiosity was gently satisfied, but she was not encouraged to make further mental effort at that time. She had long sound sleeps—the first satisfying sleeps she declared she had had for many months. Along with the restoration of consciousness, continence was restored.

Two weeks after, the tonic spasms of the leg had passed off, and three weeks afterwards she could lift her lower limb, and the function thereafter fairly quickly returned. The tonic spasm of the face disappeared. The tonic spasm of the hand remained, and though this lessened in time, the degree which remained, taken along with the defect in tactile sensation, was such that use could not be made of that hand for delicate manipulation. The astereognostic and baric sense were diminished. The patient was, however, able to use a stick in that hand to steady herself in walking.

After the operation her general health improved so rapidly and she felt so well that it was with difficulty she could be persuaded to remain in bed until it was deemed prudent to allow her to rise. When she did rise she was able to walk without assistance, and soon her agility in walking was marked. She could walk several miles very rapidly without fatigue. Though the defect in the hand remained permanent, she entered into and enjoyed life to the full for twelve years. Her mental powers were unimpaired. She remained clear-headed and took an active part in entertaining her friends and in sustaining conversation.

She afterwards died from an acute attack of appendicitis with general peritonitis.

It is difficult to make certain as to where this tumour originated. The sensory symptoms would point to the conducting fibres from the ascending parietal convolution. The elongated tumour itself formed part of the external wall of the left lateral ventricle, from which it extended downwards toward the base and upwards toward the vertex. The attachment to the choroid plexus was intimate. It did not grow from the membranes over the vertex, as it did not even involve the cerebral cortex on the surface.

Tumours of the Hypophysis.

Many such tumours have been reported as having been operated on with a considerable measure of success. Horsley had at an early period four cases. Their interest has been heightened by the growth of knowledge as to the influence of the pituitary body on growth and the production of acromegaly.

There have been four cases in my experience in which the pituitary body was diagnosed as being involved. Two of these were not operated on: one on account of the general weakness of the patient, the other as the progress was slow and the symptoms so slight that operation was not advised.

One of the cases operated on was a fibro-adenoma growing from the hypophysis which had caused absorption of the sella turcica, as seen by *x* rays—the absorption taking place principally forwards toward the frontal lobe. The patient had a degree of bilateral temporal hemianopsia, unilateral loss of smell (anosmia), and severe frontal headache. The tumour was removed by the temporal route and the patient made a good recovery. Though the slight degree of acromegaly which was present before the operation did not seem to have been much relieved, there was, however, no increase after the operation.

The other case was of a peculiar type—a fibro-cellular tumour or bundle of tumours, of much elongated polypoidal form, springing from the membrane of the hypophysis and involving its substance. The radiogram showed much destruction of the sella turcica forwards and downwards. The sense of smell was absent on the left side and it was defective on the other; the sight was so defective on the left side that hemianopsia could not be made out, though hemianopsia was present on the opposite side. There was proptosis of the left eyeball, evidently from pressure in the orbital cavity. Patient complained of a constant heavy feeling in the left side of the brow and pain in the left eyeball and over the supraorbital nerve distribution. There was a slight degree of acromegaly: the hands and the lips and nose were thick.

The operation in this case was through the fronto-temporal route. On opening the dura and lifting the frontal lobe, what seemed at first to be a single tumour was exposed, but on attempting to remove it the mass separated into a series of polypoid growths with their base forwards, lying in line with the olfactory lobe. The longest of them measured one inch and three-quarters, the shortest one and a half inches. The breadth of the broadest part was about half an inch. They were deep red in colour and vascular and somewhat firm to the touch. There was a depression in the frontal lobe in which they lay. Four of these elongated masses within the subdural space, when elevated or turned aside, showed a fifth one, the base of which had softened and thinned the dura and made a depression through the orbital plate of the frontal by which it exercised pressure on the orbital cavity. The bone under this growth was dark-coloured and vascular. The attenuated pedicles were attached to the membranes of the hypophysis, but also involved the tissue of the gland, a portion of which had to be removed with each. Free bleeding ensued from the veins of the cavernous sinus during and after removal, which pressure arrested.

The patient made an uninterrupted recovery. The hemianopsia and anosmia disappeared along with the pain in the head. He lost the appearance of acromegaly, though part of this might be due to the general thinning of the whole body. He lost flesh and weight, but remained healthy.

Polypoid growths are much more likely to arise in the sphenoidal cells, and, *a priori*, when growing from the membranous covering and body of the pituitary, one would have expected them at least to have invaded the sphenoidal cells in process of growth. This, however, they did not do in this case.

Points regarding the Subdural Space.

Questions have been asked, especially by foreign colleagues, as to what were the essential elements in brain surgery that promoted success, and how it was that pyogenic invasion of the brain in the form of brain abscess would be overcome. It is apparent that one must have an intimate knowledge of the brain and its function—its anatomy and physiology—and thereafter observe the rules whereby one may gain access to the structure with the least possible damage. The anatomy of the brain must be taken in relation to its envelopes, the head as it is normally; and not the soft contents of the cranium, separated from supports, lifted apart and altered in form by being laid on a flat surface.

As it is leptomeningitis that is the most fatal complication in abscess of the brain, attention to the pia arachnoid and the subdural cavity is necessary.

Not so long ago the peritoneum was supposed to be inviolable; its opening was to be avoided on account of peritonitis, which ensued from the entrance of organisms. Now, with asepticity, that problem has been overcome, and the peritoneum is invaded daily without evil consequences. The pleura likewise was not to be opened, as the physiological dogma of the day taught that the lung was only kept in place through atmospheric pressure, and to open the pleural cavity was to induce instant collapse of the lung. A different view of the physics of the lung recognized that molecular cohesion

—or surface tension—between the two layers of the pleura is the main factor in maintaining the lung in full expansion, and after the two layers have been separated, while performing operations on the lung, the aid of this force may be relied on to restore the lung to its normal state of expansion. So that, by making use of this force, operation on the lung can be freely undertaken, without resort to special apparatus.

The physics of the brain and its meninges are also worthy of attention, especially by those who desire to invade the subdural cavity—as anyone must who is going to perform an operation on the brain.

Doubtless everyone knows the elemental anatomical facts regarding the cerebral coverings and their relations, but do we fully realize and act upon them? We know that there is a subdural space, but there is a confused idea that the spider has spun its web with many attachments between the dura and the surface of the brain.

The arachnoid scarcely exists as a distinct continuous detachable membrane over the surface of the cerebrum, but rather as a few sparsely distributed cobweb strands of connective tissue bridging the surface of the sulci, and from which a few detached strands may occasionally be seen during life suspending the blood vessels on the surface of an oedematous brain. Therefore one agrees with Henle* rather than with Bichat in his views of the arachnoid. A slight extra separation of the pia from the dura by fluid, such as external hydrocephalus or a subdural haemorrhage, disrupts many of the cobweb strands, and a clear subdural space exists, extending from the vertex to the base, and from that to the spinal cord. When this free subdural space obtains, a subdural haemorrhage occurring on the vertex would be free to spread in a thin layer over the surface, and to envelop the brain, extending to the base, and might penetrate into the spinal canal and prove fatal by pressure on the respiratory centre. That this can take place with serious results the following record will show.

On one occasion when starting on a professional visit to the country, and having just left myself time to catch the train, I was taking a ticket at the booking office when I became aware of the people in the queue laughing at some remark which I had only partially caught. It was repeated, however, by an importunate man, who, addressing me, demanded that the "Professor should open his head." I had to go quickly to the train, and on reaching my carriage found that the man had followed, repeating his request. The officials, hearing him make the strange request and seeing that his equilibrium was not quite certain, were keeping him back from the carriage. I had, however, time to look at him for a moment and saw that he was ill—dazed and having inequality of the pupils. I had just time to take out a card, writing on it "Admit patient, Royal Infirmary, urgent, examine head, possible operation," asked the officials to put him into a cab and send him up, when the train departed.

On returning from the visit five hours afterwards I went straight to the Royal Infirmary and found the house-surgeon, who told me he had been coming to tell me the patient was ready for operation when he was overtaken by a nurse to say that the patient had just died suddenly.

Previously they had noted wide dilatation and fixation of the left pupil, and a hemiparesis of the right side of the body. He had given them the history of having fallen ten days previously and struck his head on a projecting stone. He had never, at that time, been unconscious, but suffered from great pain and feeling of weight in the head.

He had gone to his work—that of marble cutter—the following day, but was put off at dinner time as the foreman stated he was not cutting his lines straight. He was advised to return when he was "sober." The same thing happened when he again returned to work the next day, when he was dismissed. He stated that he was perfectly sober and had not been drinking. During the time he was being prepared for operation, not desiring to lie down, he sat on a chair, stating that he was easiest when he was leaning forward with elbows on his knees and his hands supporting his head—that he had sat that way since his injury and had never been in bed.

He afterwards went to bed in the ward, where he lay without a pillow, half prone and with his forehead over the side of the bed looking downwards. In this posture he was at ease and fell asleep. Shortly after his position was altered and he lay on his back, immediately after which his breathing became stertorous, his respiration suddenly ceased, and he died.

At the autopsy a subdural haemorrhage of large extent and fully a quarter of an inch thick was found, which had extended from the posterior part of the frontal lobe all over the external surface of the cerebrum, including the occipital lobe. This was semi-coagulated. It was seen that the clot, which had been somewhat adherent to the walls of the subdural space, had recently slipped backwards to the extent of an inch and a half from its original position, leaving vestiges of its presence in the shape of minute clots adhering to the meninges to mark its former place.

The semi-solid clot, which had slipped and shifted its position from the vertex toward the base, had extended through the aperture in the tentorium, crowded the pons and medulla, pressed on the contents of the rhomboid fossa, and arrested breathing. The cause of the bleeding was rupture of the posterior middle meningeal, which had been injured by a fissured fracture which extended from the base toward the vertex without encroaching on the middle ear.

How many times after traumatism does the blood effused into the subdural space spread and gain access to these vulnerable basal parts, especially where the practice obtains of placing an insensible man on his back, gravity thus aiding toward the fatal issue?

During the process of exposing the brain for the removal of neoplasms and while pushing aside the external coverings, if haemorrhage occurs into the subdural space it is serious, and the more so if, after wounding a large surface cerebral vessel, the free opening of the skull and its membrane is delayed. For this reason, among others, the ordinary trephine is seldom used, a large osteoplastic flap being raised instead. The dura is opened from the centre of the exposed surface, care being taken to do so without injuring any of the vessels of the pia mater. In this way a clear view is obtained of the fresh normal surface of the brain without obscuration by blood. The delicacy and tenuity of the superficial cerebral vessels is so great that they abrupt on very slight traction, and in order to ligature them successfully one ought to have previous practice, by ligaturing the strands of a suspended cobweb, and so realize how big and how forceful the fingers are. One has also to educate oneself to refrain from ligating any vessel that may be circumvented, as anaemia of even a minute area of the brain may lead to degeneration and perversion or destruction of its function.

Entrance of Pyogenic and Pathogenic Organisms.

Pyogenic organisms introduced into such a cavity would be disseminated along the loose strands of connective tissue of the pia arachnoid with great rapidity, so that in a few hours the whole pia arachnoid would be diffusely affected and the whole cerebro-spinal system involved. When the pia is affected the whole cerebral cortex is involved.

Though this is well recognized in the steps taken to secure asepsis from without, is it equally carefully observed when removing pyogenic or pathogenic organisms from within a walled-off area in the brain already guarded by defensive adhesion? Does the operator follow the rules he would observe were he about to deal with a localized abscess bound off by adhesions from the general cavity of the peritoneum? Presumably no one would care to open such an abscess through the healthy peritoneum and thereby expose the general cavity to invasion, even though it might be the easier route to follow.

In the earlier periods it was believed that abscess of the brain was pyaemic, and therefore regarded as hopeless.* Even were the abscess of the brain pyaemic in origin and located in the white substance it could be dealt with surgically, provided provision were made for the uncontaminated preservation of the subdural space by preventing pyogenic matter from coming into contact with the soft membrane and setting up a leptomeningitis. Therefore adhesions, natural or artificial, must be sought before opening the abscess through the subdural space.

It has been recognized that the majority of uncomplicated brain abscesses—such as those occurring in the temporo-sphenoidal lobe—form by continuity of invaded tissue directly from the point of origin, and soldering of the meninges occurs in process of, and in many cases prior to, the formation of the abscess. There is thus a route or pathway of invaded

* Henle describes the arachnoid as a connective tissue of extremely "loose make-up."

* At an early period it was said by a very eminent member of our profession that it was useless to attempt removal of a brain abscess as they were all pyaemic and would all prove fatal. Is this belief quite dead?

tissue between the point of origin and the abscess round which nature attempts to form a defensive barrier.

In endeavouring to relieve the contents of the abscess one must keep within the limits of the adhesions by traversing the parts through the affected area from the original focus to the abscess itself. The evacuation would then be accomplished under favourable conditions—as leptomeningitis would be unlikely to occur. It is doubtless more difficult to follow this tract to the abscess than to open directly through the skull, and the latter gives more room for manipulation. But in adopting this course one is opening the general subdural cavity and exposing it to contamination unless one affects the closures of the space by soldering the membranes artificially before proceeding to evacuate. As leptomeningitis is the most fatal complication of brain abscess it is of paramount importance to prevent its occurrence.

Subdural Space: Leptomeningitis from Violent Vibration in Opening the Skull.

The method of removing the osseous covering in order to gain access to the abscess is of importance as, if in so doing vibration of a rude kind is produced, the spicules of eroded bone at the seat of disease, being bathed in pyogenic matter, are apt to penetrate the soft membranes with their jagged edges, and to inoculate the pia arachnoid and set up leptomeningitis.

Instruments which do their work more gently without producing violent vibration, such as the surgical burr, which may be held lightly like a pencil in the guiding fingers, remove the bone in minute flakes without injuring the soft parts.

Though having used the osteotome and mallet in performing thousands of osteotomies on the bones of the extremities, it has never been used by me on the skull, as it was feared that the violent impact and vibration occasioned thereby would be detrimental to the delicate contents. Even for the removal of cerebral neoplasms the violent vibration in opening the skull by chisel and mallet must in many cases be detrimental to the softened cerebral substance and the enlarged thin-walled blood vessels in the vicinity of the tumour or abscess.

Post-operative Adhesions between the Brain and its Membranes: Can they be Prevented?

Having removed the neoplasm from the brain with as little interference of its structure or its blood supply as possible, one has to endeavour to mitigate the damage to the surface of the brain and to restore the subdural space to its normal conditions.

Can adhesions between the brain surface and the dura or skull itself be prevented?

In the abdominal cavity adhesions give rise to considerable and sometimes serious trouble. In the intracranial cavity adhesions between the pia mater or the nude brain and its rigid envelopes may mar the subsequent results of the most brilliant operation. By the constant dragging of these adhesions on the brain tissue extensive degenerative processes may be set up, giving rise to fresh brain areas being involved which may prove fatal. Normally the brain floats in its water bed and is contained within its covering like a specimen in a bottle which has been specially shaped to the form of the specimen; this economizes space and fluid. Its surface is not adherent to any part of its fixed coverings, though attached basally by certain nerves. This allows of accommodation to the varying conditions of the brain in expansion and contraction, in response to vascular conditions and to the varying positions of the body. When the brain becomes fixed by an adhesion to the rigid wall two things happen: the motor cortex at that point does not function properly, and secondly, there is a dragging at the point of fixture and for a considerable distance beyond, and as this dragging is repeated with varying conditions of the brain the mechanical interference tends to produce degeneration in the white substance as far as the strained brain fibres extend. This may be mitigated by guarding against sudden changes in cerebral vascularity and quick alterations of posture; the patient himself, realizing his altered condition, aids in these directions.

It is very desirable to prevent such anchoring of the brain, or if this be impossible to mitigate the evil by making the adhesions as long as possible, so that there would be a little play or yield in the cable; the brain would not then be so suddenly checked in response to its varying conditions.

In endeavouring to prevent adhesions one misses the arachnoid *membrane*. The spider's web would be useful to cover a wound in the brain and to intervene between the cerebral surface and the dura. Very occasionally by diligent search a tangible portion of the web has been found sufficient to cover a small surface. If one only had in the brain coverings an apron like a modified omentum, which is of so much service in preventing adhesions between parietal and visceral layers in the abdomen, it would answer the purpose admirably. On one occasion a thin portion of omentum was used to cover such a defect between a large nude portion of the brain and the dura. It was carefully prepared and easily applied, accommodating itself to its new situation, and apparently served its purpose, as this patient had no after-evidence of adhesion. The specimen was taken from a redundant omentum, removed during a radical cure of hernia. One of the most easily procurable substances is blood clot. It is bland, mild, and accommodating, and allows sufficient time to elapse for the healing of the wound in the brain before complete absorption takes place. Gold-foil is also of use, but it does not become absorbed and sometimes seems to occasion irritation. On one occasion a portion of gold-foil had to be removed by subsequent operation as it had occasioned irritation and slight spasms.

Whatever method is adopted the main point is to secure the closure of the defect in such a manner as to refloat the organ and to restore the free flow of cerebro-spinal fluid. Although brain anchoring does produce serious effects it does not affect all equally seriously. Some who have been operated on at an early period of the new era of brain surgery and had the misfortune of having a certain degree of brain anchoring, have lived many years of useful life—one patient over thirty years. They exhibited slight defects, such as vertigo and sickness on sudden changes of posture, such as stooping and then rising quickly. One had in addition occasional faintness, slight unconsciousness, and convulsive movements of the muscles of the opposite side, which only lasted a few minutes. Games such as tennis could not be played except with restraint. One patient had more serious fits and mental confusion whenever he took influenza. He had to remain in bed while the attack lasted. Otherwise he lived for over twenty years and did good work. He is still alive and at work.

It has been advised to leave the large aperture in the skull open to obviate some of the effects of cerebral adhesions, and though benefit in this direction may ensue, other more serious disadvantages obtain. The brain is never so happy as when at home contained within its own normal case. The restoration of the osseous covering by reimplantation of bone has long been practised by me.

It is hoped that by drawing attention to these simple details the prospects of recovery may be improved and the subsequent troublesome sequelae avoided.

Tubercle of the Brain: Can it be Advantageously Operated on?

Regarding the most frequent invaders of the brain, syphilis and tubercle, one is seldom called on to afford relief for such lesion by operation. They are diseases due to organisms which in the former are always and in the latter are apt to be generalized throughout the body. Though these diseases are amenable to medical treatment, yet both produce neoplasms which undergo degeneration and often caseate, and once such a necrotic neoplasm forms medicaments circulating through the blood stream, though they may affect the living tissue in their periphery, cannot penetrate into the dead mass, and therefore it remains. Though it might be otherwise quiescent, it presents itself in the brain as a foreign body exercising pressure on the delicate brain structure to its detriment, producing focal irritation or generalized symptoms according to its extent and distribution.

Tubercle is often meningeal, and in the form of acute diffuse cerebro-spinal tuberculous leptomeningitis so impresses itself as a hopeless condition which at least no operative measures can permanently relieve, that this picture overshadows other forms of tubercle in the brain which are apt to be placed in the same category. Yet tubercle is not always meningeal, and even when it is it may be localized.

Tubercle may be deposited primarily in the brain substance, in the white matter, where the finer vessels penetrate, and there cause concentric nodules which grow occasionally into very large tumour-like masses. Some of the largest solid neoplasms in the brain are tuberculous, and from their size threaten life and do kill from pressure—mainly, if not alone. That is important, as in these cases there is no

meningitis or evidence of dissemination, and therefore had the bulk been removed relief and probably cure could have resulted.

When tubercle is deposited in the fine vessels of the white matter of the brain primarily, if near the cortex, the extension of the nodule peripherally may involve the meninges and set up a secondary leptomeningitis if soldering of the membranes had not preceded and prevented the invasion of the subdural space. This is a second source of danger from the primary cerebral tuberculous nodule and another reason why such nodules would be better removed were that possible, with a reasonable margin of safety and the prevention of dissemination. When possible one ought to secure adhesions of the membranes before removal of such foci.

A number of these deep-seated tuberculous neoplasms in the brain are single or solitary; this has been proved at the autopsy. Some of those that have been removed from the brain during life were apparently solitary, no others having signalled their existence, and the patient has either lived for years or has died from other causes, or from tuberculous attacks in other parts of the body without signs of recurrent cerebral involvement. Liquefaction of such tuberculous neoplasms occurs and forms one of the so-called "encapsulated abscesses" containing the characteristic white creamy emulsion-like fluid. The histories of many of these point to their long duration—many years, some a lifetime. If there be an exit through the meninges and skull through which they may empty themselves, it is possible they may do so at intervals over long periods, and when such an exit exists other organisms may enter. The pyogenic organisms, finding in the tuberculous emulsion rich pabulum, readily invade the cavity and set up therein an acute pyogenic action. In one instance the pyogenic organisms invaded the periphery of the encysted abscess, destroying the brain extensively in its circumference and forming a sea of pyogenic pus, in which the encysted abscess, containing its characteristic creamy tuberculous liquid, was seen floating intact and from which it was removed by operation.

Tuberculous neoplasm in brain, showing the results of its presence.

One of the patients from whom an encysted tuberculous so-called "abscess" of the brain was removed thirty-five years ago is still living and at work. Presumably this was a "solitary" tuberculous brain lesion.

When tuberculosis invades a localized portion of the brain the cortex of the strands therefrom are involved and sensory or motor impressions may result. When localized to restricted areas it may give rise to sensory or motor symptoms and to epilepsy of a Jacksonian type with the usual phenomena. Removal of the affected portions stops the epilepsy and prevents dissemination of the tubercle.

Tuberculosis occurring under the tentorium cerebelli, where it forms formidable neoplasms, presents quite another problem. Here the pressure of the growth gradually persists until it affects not only the vital centres—the respiratory and cardiac—but is far-reaching in its consequences. The whole cerebrum is benumbed from the distension of the ventricles with cerebro-spinal fluid and the production of oedema of the brain. The eyesight is involved by the induction of optic neuritis and nerve atrophy which destroys the sight. In the later stages the patient presents a deplorable aspect—the earthy pallor of the face, the complete atony, scarcely able to move a limb, the disturbance of equilibrium so marked that while lying flat in bed the bed heaves, the furniture, the nurses, and the ward gyrating like a ship in a tumultuous sea. As the patient lies groaning with pain, headache, vomiting, scarcely able to breathe, with slow pulse, he completes a picture of agonizing misery which compels relief. He is virtually being crushed to death.

The free removal of the osseous envelope aids; the full opening of the dura affords much and instantaneous relief, which is increased by inducing the neoplasm to escape from the cerebellar contents. To this end the opening may be extended over the whole cerebellar fossa, the strong girders being left intact—and even, if need be, the opening may extend into the foramen magnum at its posterior aspects. This gives speedy and effective relief to pressure on the medulla, and the cut edges of the foramen are guarded by that portion of the cerebellum which normally dips through the foramen magnum into the upper portion of the spinal canal, and which does so to a much greater extent when the cerebellum is under *severe pressure* from abscess or neoplasms.* When a patient after an operation of this kind has recovered from the sleep of exhaustion induced by his long suffering and is able to appreciate that he is actually free from his terrible ordeal with all its pain, vertigo, and sickness, the look of relief—the smile that lights his face—is worth much!

It is, however, at the very early period of invasion of the cerebellum that the diagnosis is of so much importance, as the disease could then be removed by a smaller operative procedure, and the prognosis would be much more hopeful; and even were the operation unsuccessful in affording permanent relief, it would prevent the patient from undergoing the crushing agony. At the early period, however, the diagnosis of tubercle in the cerebellum is difficult, and sometimes months elapse—sometimes many months—before symptoms occur sufficiently obtrusive to arrest attention. As these neoplasms form frequently in children, some of school age, their early indications are insidious and are often misconstrued. They occasionally occur in bright children who have done well in school, who after a time cannot maintain their place, appear careless and negligent, and are sometimes treated on this assumption. Later they become listless, dull, and apathetic, and no longer engage in the vigorous games they previously enjoyed. The tumour is in the cerebellum, yet it is the cerebrum that affords these early symptoms. The cerebrum has become affected by the distension of the ventricles and involvement of the optic tract. The differential percussion note reveals the presence of the distended ventricles.

In one such case—one of many seen—the wise teacher, instead of punishing the boy, sent him to the father, relating the change in his school behaviour and his seeming loss of interest in his work. The parents could not find anything the matter, but brought the boy to me for examination, as they said if there were nothing wrong with him mentally or physically they would know how to act. Much to his astonishment, the father was told that the boy was suffering from a form of tumour, probably situated in the posterior part of the brain, which would eventually declare itself in

* The fact that the cerebellum dips through the foramen magnum normally and protects the medulla was alluded to by me in 1889, and was thereafter illustrated in the *Atlas of Head Sections*, published in 1892. Professor Adami of Vienna had expressed disagreement and suggested that the method of preparation of the specimen—that of freezing—had expanded the brain and caused the extrusion. The freezing, however, was effected from without inwards, which would have a contrary result—if any. Had the expansion from within been so great, the tentorium would have been overstretched or burst, whereas it remained intact and normal; there would have been proptosis of the eyeballs, whereas they were rather contracted; and where the cerebellum protruded the medulla would have been equally affected, whereas it was found in its normal relations and size. Professor Symington, from independent and various methods of investigation, other than freezing, verified the observation that a portion of the cerebellum does normally pass through the foramen magnum into the upper part of the spinal canal.

certain directions unless it were relieved. Although the boy thought he could see quite well, yet the visual acuteness had diminished; there was slight turgescence of the optic discs. Though he had no ataxia at the beginning of the examination, it became distinct after his pupils had been dilated with homatropine, and the accommodation was suspended. He was aware of not being so sure of his movements in the dark as he used to be. The percussion note over the head—the pterion—revealed the presence of considerable fluid in the ventricles, and that, along with other phenomena, explained the cerebral symptoms.

The note elicited on percussion of the skull has been used by me since the early seventies in aiding in the determination of certain pathological conditions which alter the physics of the cranial contents, especially those of the distension of the lateral ventricles. Since then it has been employed regularly as occasion presented, and it has been found of particular use in children and in those whose skulls are sufficiently thin to vibrate on percussion. In such it has been found a valuable adjunct to other means of diagnosing intracranial contents physically. In this country it is only occasionally that one sees mention of its use, but it is now methodically practised abroad—in some quarters as a regular routine of the examination—and it has been found reliable. It is particularly useful as it is an early symptom often elicited when the signs of cerebellar neoplasm are still doubtful or in need of support by further evidence. Its presence has often determined the further search for causal neoplasms whose symptoms afterwards slowly evolved.

In Germany it has sometimes been described as the "cracked-pot sound"—this it is not. The "cracked-pot sound" is seldom heard on percussion of the head. In an experience of many injuries of the head, the genuine "cracked-pot sound" has only been heard by me on six occasions—at long intervals the one from the other. In one case, where it was very pronounced on percussion of the head, it was found at *post-mortem* examination that there was a fracture of the skull completely circular—passing through the base, including both petrous bones, and meeting over the vertex—the skull being completely divided into two halves. One does not find the "cracked-pot sound" except where there is an extensive fracture of the skull. The differential percussion note referred to, which is found where the lateral ventricles are distended, is generally best elicited by percussion over the pterion, and it alters its pitch according to the position of the head—the side that is undermost giving the clearer hollow note. It cannot be found in a hydrocephalic head where the bones of the skull have not been united.

Abscess of the cerebellum when small and limited is easily removed, the difficulties lying more in the early diagnosis of the location of the abscess than in the removal of it once the diagnosis has been made. When due to extension backward or pyogenic processes from the middle ear the location of the infected tract in the vicinity of the knee of the sigmoid sinus is so constant that it aids in determination of the point of access to the pus.

In large abscess of the cerebellum, however, pressure results ensue, though the pyogenic process being much more acute the pressure effects on the adjacent structures are intensified by the inflammatory action with its attendant oedema—hence the respiratory difficulties threaten life occasionally with tragic suddenness. Though usually there are premonitory signs of respiratory involvement sufficiently in advance to afford time to rectify the condition by operation, yet sudden access of oedema may precipitate a fatal issue. In four instances of large cerebellar abscess, so quickly had the respiratory difficulties ensued that operation had to be performed by me while artificial respiration was being carried on. In one of these a patient who had become unconscious before admission to the hospital had only reached the ward when his respiration ceased. Artificial respiration was commenced at once and continued until operation could be performed. The whole operation had to be conducted simultaneously with the performance of artificial respiration, and as the respiration was paramount the position of the patient had to be arranged to accommodate it. Consequently the operation had to be performed from below. No anaesthetic was given as the patient was unconscious. On reaching the abscess two ounces of pus escaped, and shortly after the first spasmodic respiratory gasp occurred, which was repeated, and gradually the automatic respiratory movement was re-established—much to the relief of the staff. While the house-surgeon and nurses, who had just been relieved from their arduous and fatiguing work of prolonged artificial respiration were still on the alert with drawn faces and strained anxious expressions, watching the man whom they had such great difficulty in rescuing from the brink, the patient recovered consciousness, and seeing his strange surroundings and the anxious theatre staff exclaimed, "What is all this damned fuss about?" It had a startling effect on the astonished staff—the unseeing eyes, which had been open all the time, suddenly saw! The removal of the pressure and the inflammatory oedema from the respiratory centre situated on the posterior part of the rhomboid fossa had relieved the cardiac and respiratory centres and the consciousness was restored by the relief of the ventricular pressure on the brain.

The Suprameatal Triangle.

The suprameatal angle above and behind the osseous auditory meatus with its apex forwards was proposed to be used by me as a guide or landmark to the position of the mastoid antrum. It was found that, when converted into a triangle by dropping a base line parallel with the posterior part of the external auditory meatus and operating within that area, the mastoid antrum could be safely reached without encroaching on the knee of the sigmoid sinus or endangering the facial nerve. The mastoid antrum is the key to opening the mastoid in gaining access to pyogenic lesions of the temporo-sphenoidal lobe. It is through the tegmen tympani and antri that abscess in the tempero-sphenoidal lobe of the brain may be reached within the area of the safeguarding adhesions, and through the posterior wall of the antrum that access may be had to the sigmoid sinus and to the adherent membranes in front of the cerebellar abscess.

Later experience in using this suprameatal angle as a guide has been extensive, and has always proved to be reliable. It has been advised that in perforating through the mastoid so as to strike the antrum the drill should be directed slightly upwards and forwards, and there are cases where this upward direction would be necessary, owing to sclerosed bone pressing the antrum upwards.

Extended scrutiny of the skulls of many nationalities, ancient and modern—from the pigmy of the African forest to the higher types of civilization — has been made since the suprameatal angle was proposed as a guide or landmark, and it has been found that the suprameatal angle has been universally present, though in some specimens it has been more distinct than in others; not only so, but in some of the higher apes (whose skulls have been examined) the suprameatal angle is also found. Through the courtesy of Sir Arthur Keith, Professor of Comparative Anatomy in the Royal College of Surgeons, several skulls of chimpanzee which had the suprameatal angle distinctly marked were sectioned—through the angle—and the sections were found to pass directly through the mastoid antrum. In one specimen of the gorilla, which had not such a distinct suprameatal angle, the section disclosed a small antrum surrounded by many smaller cells.

Doubtless the dome of thought ought to be left inviolate. It was built that way, but occasionally rude traumatisms and peccant matter invade the sanctuary and have to be followed and removed.

It has been said that the brain stands much handling. Possibly! One cannot open the skull as a box and rummage until the object is found. The accuracy of diagnosis is of paramount importance. Many errors of diagnosis may be rectified by exploratory incisions in the abdomen. This is much more difficult in the brain.

The more one sees of the intricate, delicate structure, the greater the reverence one entertains for it, and the less one is inclined to disturb its arrangements or to interfere with its function. When it does require to be touched it ought to be with the greatest gentleness, by an acutely sensitive finger, carefully trained and guided by the blessed gift of memory of tactile sensations, to which each new impression may be quickly relegated, grouped, and correlated in ordered sequence. When neoplasms have to be removed therefrom the endeavour is to do so with minimal disturbance of brain tissue. It is for this reason that the impetus received from the intrinsic cerebral pulsations are utilized to aid the extrusion of blood clot or neoplasm through the incision in the brain once adhesions have been loosened, as, though this method takes more time, it does less damage.

Cerebral surgery has been the means of adding to and confirming the knowledge of brain function in man, especially of the regions of the cerebral cortex other than motor, to which experimentation on the lower animals can with difficulty contribute. It has laid bare physical lesions in the cerebrum

producing mental aberration, and, by the removal of the lesion and the restoration of cerebral function, has thereby proved that the presence of the lesion was the cause of the perversion of function. In a sense some of these lesions produced in the brain of man may be regarded as experiments carried out by nature with a delicacy, accuracy, and refinement which no human experimenter could equal. Surgery of the brain has its limits, but these have not been reached. There is still a large field for careful observation and accurate work.

A period of growth in cerebral surgery has been touched on. It is hoped it may be concluded that the introduction of cerebral surgery with its scientific basis has been justified. It has been the means of saving many lives, and by removing the "blot" upon the brain—or by unravelling a tangled skein—has brightened existence.

Proceedings of Sections.

SECTION OF INDUSTRIAL DISEASES AND FORENSIC MEDICINE.

PRESIDENT'S ADDRESS.

BY

JOHN GLAISTER, M.D., F.R.F.P.S.GLAS., D.P.H.(CAMB.), F.R.S.E.,

Regius Professor of Forensic Medicine and Public Health, University of Glasgow; Specialist Medical Referee in Industrial Diseases for the Counties of Lanark, Ayr, Renfrew, Bute, Dumbarton, and Stirling.

THE conjunction of the subjects of forensic medicine and industrial diseases in one Section may seem, to some at least, to be incongruous, but when it is remembered that forensic medicine is the application of the science of medicine to the purposes of the law, and that probably no Act of Parliament has ever given rise to so much litigation as the Workmen's Compensation Acts, the incongruity at once disappears.

The subject of compensation to workmen for injuries and for accidents in the form of industrial diseases has found a place in some textbooks treating of forensic medicine, but hitherto forensic medicine has been considered chiefly from the standpoint of the criminal law. It is, however, of importance that the medical student should know something of the purport and administration of the Compensation Acts in view of his possible appointment in the future as Certifying Surgeon and, later, as Medical Referee. It is necessary, therefore, that he should begin his medical career equipped with some knowledge particularly of industrial diseases, looking to the fact that the chief populous centres of the country are hives of industrial operations.

At the Seventeenth International Congress of Medicine, held in London in 1913, I read a paper in the Forensic Medicine Section—published in the Congress *Transactions*—on "The Workmen's Compensation Act, 1906, and its Operations in Great Britain." In that paper attention was drawn to the principal provisions of the Compensation Act, 1906, and of the Employers' Liability Act of 1880. Some consideration was also given to industrial diseases. The former Act came into operation in July, 1907, and the first completed statistics relative to its operation were published in 1909. This paper was illustrated by a series of fifteen tables collated from the returns of 1910 and 1911.

Dealing for the moment with forensic medicine, two subjects will now receive attention.

From time to time the question has been openly discussed: Whether the time has not now arrived for the inclusion under one group-subject of all matters which involve the application of the science of medicine to the purposes of the law, such as National Health Insurance, the Compensation and Employers' Liability Acts, and those portions of Public Health law briefly comprised under the headings of Nuisances, Unsound Food, and others relating to medical knowledge as applied to the law, with the title of State Medicine.

Much can be said on both sides of this subject, but the conclusion which may judiciously be come to at present is, in my opinion, that the time is not yet ripe for such general inclusion. It has to be borne in mind in this connection that the Workmen's Compensation Acts and the National Health Insurance Acts, which at their institution were revolutionary in principle, have not yet been established sufficiently to warrant a sudden change in the manner indicated.

Another subject canvassed at present is: Whether the teaching of forensic medicine to, and examination in that subject of, all students of law as well as of medicine should not now be made compulsory before they are recognized as qualified to practise their profession.

The regulations of the General Medical Council demand that medical students shall be taught and be examined in forensic medicine or, what is merely another designation, in medical jurisprudence. In Scotland it can be claimed that the subject receives its fair share of attention in the medical curriculum, and also in the examinations of the universities and medical corporations, but doubt may be expressed whether the same attention is being given in certain examinations in England.

In view of the fact that any general medical practitioner may suddenly be confronted with a set of circumstances which demand of him an accurate knowledge of medico-legal matters, and may thus become an important witness in the after-proceedings in the case, it is essential for the protection of the lieges and in the detection of crime that he should be familiar with the subject. Some recent cases do not exhibit that knowledge. Speaking from experience gained from over forty years' work as a teacher of forensic medicine, and from nearly a like period as a medico-legal expert engaged in Crown work, one has to confess that the importance of the subject to the average medical practitioner is not generally recognized. One cannot avoid the conclusion, moreover, that not a little litigation, especially as exhibited in medical evidence, could be avoided by a better acquaintance with forensic medicine. And what is true of the medical profession is, perhaps, still more true of the legal profession. In Scotland and, we understand, also in England the general practitioner in law—the law agent or solicitor—does not require to study nor be examined in the subject of forensic medicine before being admitted to the practice of the law. While this may not be essential for certain classes of legal practitioners—as, for example, conveyancers—it is highly essential for the general legal practitioner who undertakes the work of litigation in the lower courts in cases involving medical matters and medical testimony, as in compensation cases and in criminal work.

In Scotland a candidate for the Bar must study and must have passed in the subject of forensic medicine, but we are not aware of a like compulsion for admission to the Bar in England. While we cannot but admire the ability displayed by barristers for prosecution or defence in criminal cases tried before the higher courts, the feeling remains that previous acquaintance with forensic medicine would have been of advantage. From my experience in the law courts I have long since reached the opinion that the time is more than ripe for the institution of a regulation by the law societies, whose qualifications admit as law agents or solicitors, for the compulsory study of and examination in forensic medicine as part of the curriculum by all candidates.

INDUSTRIAL DISEASES.

I propose to look at this subject retrospectively and prospectively.

History of Compensation to Workmen.

The history of compensation to workmen may be thus compendiously stated: Until 1880 in this country the only legal remedy open to a workman who had sustained bodily injury in his employment was an action at common law against his employer. In 1880, however, Parliament passed the Employers' Liability Act, which modified the common law rules to the workman's interest. But, in an action raised under this Act by a workman or by his dependants, it was necessary to prove that the accident causing injury or death was caused by defects in the plant or machinery due to the negligence of the employer or of someone under authority of the employer. The workman or his dependants was liable to be met with the defence of "contributory negligence" on his own part or of that of a fellow workman, and also of the plea of *volenti non fit injuria*—that is, if the workman agreed expressly or by implication to accept the common risk of employment. This Act, therefore, did not provide a certain, easy, or inexpensive means of obtaining compensation.

In view of the foregoing, certain movements were made by

those in power to amend the Liability Act of 1880, and a bill was introduced into Parliament in 1893, which was passed by the House of Commons, but was abandoned by the Government when the House of Lords preserved the doctrine of "contracting out" in its amendment.

In 1897 the first Workmen's Compensation Act was passed, by which a remarkable change was made in the law relating to master and servant; indeed, as compared with the legal relationships as to responsibility embodied in the Employers' Liability Act, 1880, the provisions were revolutionary, for the Compensation Act imposed on an employer the liability to pay compensation to an injured workman, or to his dependants if the injury proved fatal, quite independent of the question whether or not there had been negligence on the part of the employer or of any fellow workman. This was a new principle established in law for the first time.

In 1900 the second Compensation Act was passed. This differed only from the first Act in that it included agricultural employees as beneficiaries under the law. This Act of 1900 had been in operation for three years when a Departmental Committee was appointed to inquire and report regarding: "What amendments in the law relating to compensation for injuries to workmen are necessary or desirable, and to what classes of employments not now included in the Workmen's Compensation Acts those Acts can be properly extended, with or without modification."

This Committee reported in 1904, and the Compensation Act of 1906 embodied their recommendations. In short, the Act of 1906 codified and extended the Acts of 1897 and 1900.

For the first time, however, in the history of these Acts, industrial diseases were brought within the scope of compensation, and procedure was improved for accidents generally by enabling a county court judge in England and a sheriff in Scotland to summon a medical referee to sit with him as assessor in disputed cases. Moreover, power was given to parties jointly to refer their dispute, as to the cause or extent of the incapacity of the workman, to a medical referee, and a provision in the Act enabled the Secretary of State to confer on committees representative of employers and workmen certain powers for arbitration otherwise conferred exclusively on county courts.

In this year (1906) there was no provision in the United States of America for compensation to workmen enacted by legislation. By 1920, however, no fewer than 42 out of the 48 States comprised in the Union had compensation laws in operation. Each State or province of the British Dominions has an Act for the like purpose. Russia came into line in 1913, and Portugal in 1919. Even in Hawaii, Porto Rico, Cuba, Salvador, and Japan does compensation law prevail. It may be concluded, therefore, that the most of the civilized world to-day has operative compensation laws.

Persons entitled to Compensation.

The Act of 1906 extended the scope of beneficiaries still further than the previous Acts by including practically all persons in employment other than casual workers, all persons employed in the service of the Crown as employer of labour or in any workshop under control of the Government, to masters, seamen, and apprentices to the sea service, and to apprentices to the sea-fishing service, in all vessels registered in the United Kingdom or of any other British ship or vessel of which the owner or manager resides or carries on business in the United Kingdom, and to pilots in terms of Part X of the Merchant Shipping Act, 1894; but the extension did not include members of the crew of a fishing vessel remunerated by shares in the profits or gross earnings of the working of such vessel, nor persons in the naval or military service of the Crown.

The following is an interesting definition of the expression "workman" given in the Act of 1906:

> "Workman does not include any person employed otherwise than by way of manual labour whose remuneration exceeds two hundred and fifty pounds a year, or a person whose employment is of a casual nature and who is employed otherwise than for the purposes of the employer's trade or business, or a member of a police force, or an outworker, or a member of the employer's family dwelling in his house, but save as aforesaid, means any person who has entered into or works under a contract of service or apprenticeship with an employer, whether by way of manual labour, clerical work, or otherwise, and whether the contract is expressed or implicit, is oral or in writing."

The Departmental Committee on this Act reported in 1920 that they had arrived at the view that the sum of £250 which formerly included clerical persons in offices should, by reason of the rise in wages of recent years, be raised to £350, since by this cause of risen wages not a few have ceased to be eligible for compensation under the Act.

The 1906 Act was getting into full swing when the great war broke out in August, 1914, and for the next few years its operations were ruthlessly disturbed, so that statistical data for the years of the war can only be given approximately.

The aggregate number of persons within the scope of the Act who were employed in the seven large industrial groups in 1919 was upwards of eight millions (8,359,183), and in 1920 was 8,348,150.

The figures for the years prior to and after the war are shown in the following table:

TABLE I.—*Showing the Number of Workmen under the Compensation Act before and after the Great War.*

Year.	Number.	Year.	Number.
1910	7,025,074	1914	7,057,111
1911	7,305,997	* * *	* * *
1912	7,411,005	1919	8,359,183
1913	7,509,353	1920	8,348,150

The fall in number in 1914 is doubtless accounted for by the enlistment of workmen into army service, and that in 1920 by trade depression and other factors.

The monetary cost of compensation to employers of labour has also increased, as the following table indicates.

TABLE II.—*Showing the Total Sum paid in Compensation in the Seven Industrial Groups, the Number of Fatal Cases, and the Number of Disablement Cases.*

	1910.	1911.	1914.	1919.	1920.
Total sum ...	£2,700,325	£3,056,404	£3,465,361	£4,616,723	£5,978,000
Fatal cases ...	3,510	4,021*	4,216†	3,293	3,531
Disablement cases	378,340	419,031	437,910	365,176	381,916

* Hulton colliery disaster in late December, 1910, accounted for 344 lives.
† Another colliery disaster befell this year.

In 1919 the annual charge for compensation in these seven industrial groups averaged 10s. 6d. per person employed, but the figures varied in the different individual groups. Shipping, for example, averaged 14s. 10d. per person employed, compared with 16s. 2d. in 1914; factories, 7s. 3d. per head, compared with 5s. 2d.; docks, 20s. 5d., compared with 25s. 3d.; mines, 29s. 6d., compared with 28s. 7d.; quarries, 17s. 4d., compared with 11s. 5d.; constructional work, 9s. 2d., compared with 14s. 11d.; and railways, 9s. 5d., compared with 8s. 4d.

In 1920, however, the average annual charge per head for compensation in these combined groups had risen to 14s. 4d., and the charge per workman in each individual group averaged as follows: in shipping 16s. 6d.; in factories 9s. 3d.; in docks 29s. 5d.; in mines 37s. 3d.; in quarries 19s.; in constructional work 13s. 5d.; and in railways 11s. 8d. There has thus been a substantial increase in the amount to be paid in 1920 compared with that of the preceding year. It cannot be argued that this increase is due to enhanced wages, since high, if not higher, wages obtained in 1919 than in 1920. The oncost charge for compensation in the mining industry in 1919 worked out at 1·82d. per ton of coal raised, and in 1920 to 2·44d. per ton.

Leaving at this point consideration of compensation for all accidents, let me now draw attention to industrial diseases in particular.

To establish a claim for compensation for personal injury, a workman must show that the accident was either an "accident arising out of and in the course of the employment" or that it was one of the industrial diseases within the meaning of the Act and as scheduled. In the Compensation Act, 1906, six industrial diseases only were set down in the third schedule, but power was given to the Secretary of State for the Home Department to enlarge the list of such diseases as required from time to time. At present, the list embraces about five times

the original number. It includes such diseases as ankylostomiasis, anthrax, miners' nystagmus, compressed air illness, nickel carbonyl, lead, and other poisonings, cataract in glass-workers, writers' and telegraphists' cramp, beat knee, beat hand, and beat wrist, and certain forms of cancer and ulceration due to various dusts and liquids.

But in addition to the diseases named under the third schedule of the Act of 1906, another disease—fibroid phthisis or silicosis—has been dealt with by the Legislature in the special Act, the Workmen's Compensation (Silicosis) Act, 1918. This disease in workmen, however, is differently administered from those diseases under the Compensation Act, 1906.

Schemes have been made for the refractory industries—mining and quarrying ganister rock and manufacture of ganister or silica bricks—whereby a general compensation fund, contributed to and administered by a Mutual Association of Employers in these industries, takes over the personal rights and responsibility of contributing employers, pools its finances, and dispenses compensation to disabled workmen rightfully entitled from the said general fund. The scheme also provides for a system of periodic medical examination of workmen employed in silica works, in order to prevent the development of the disease and, if required, to suspend from the employment any workman evidencing symptoms of commencing attack. It establishes also for each district a local joint committee of employers and workmen with an independent chairman, along with an expert Medical Advisory Committee, of which I am a member in the scheme for Scotland, to deal with cases of the disease. Too little time, however, has yet elapsed to permit of any definite opinion being formed regarding the prevalence of silicosis amongst those employed in these industries, and the operative value of the schemes.

The principle on which the Home Secretary has hitherto proceeded in determining the scheduling of an industrial disease is this: "That the disease or injury must be so specific to the employment that its causation by the employment can be established in individual cases." This seems a sound, safe, and direct principle, since it operates advantageously in instances in which a claim is made for the inclusion of an illness or disability which, although admittedly an illness or cause of disablement connected with a given employment, is not exclusively connected therewith—as, for example, bronchitis in flax-workers, since bronchitis may originate from other causes than flax-working and in diverse ways.

It may now be asked to what extent do industrial diseases prevail, and what compensation falls to be paid for those disabled therefrom.

Tables III and IV state shortly these points for the years 1919 and 1920 respectively. Tables V and VI illustrate (1) the different Scheduled Industrial Diseases, (2) their Incidence in Occupations, and (3) the Total Cases in 1919 and 1920.

The foregoing Tables III and IV show that in 1919 the number of fatal cases from industrial diseases was 24, for which £4,722 were paid in compensation to dependants; and the number of disablements 10,074, for which £242,292 was paid; and for both classes of cases a total sum of £247,014 had to be paid. For 1920 the fatal cases numbered 27 and the disablement cases 10,425, for which the sums of £5,387 and £365,684 respectively were paid, making a total for that year of £371,671.

In 1919 the bulk of cases of industrial disablement occurred in the mining industry, chiefly due to nystagmus, beat hand, and beat knee. These numbered 9,175, or 90·9 per cent. of the total, nystagmus alone accounting for 6,449 of the 9,175. Dermatitis due to dust or liquids was responsible for 270 cases, or 2·7 per cent., and lead poisoning for 231 cases, or 2·3 per cent.

In 1920 the same was true of the mining industry, since 9,408 cases, or 90 per cent. of the total, was due chiefly to nystagmus and the other diseases named. From nystagmus alone there were 7,028 cases, being a marked increase in number from the previous year. Of the remainder, dermatitis showed 408 cases, or 3·9 per cent., and lead poisoning 265 cases, or 2·5 per cent. The 27 fatal cases included 18 from lead poisoning, 3 from anthrax, and one each from phosphorus, benzene, nitrous fumes, chrome ulceration, scrotal epithelioma, and nystagmus.

With regard to the increasing number of cases of nystagmus, the Departmental Committee of 1920 suggested for the consideration of the Home Office that some special inquiry into this subject was desirable.

As has already been indicated, a Departmental Committee was appointed in 1919, the reference to which was as follows:

"To inquire into the working of the present system of the payment of compensation to workmen for injuries sustained in the course of employment, and to consider and report whether it would be desirable

TABLE III.—*Showing Payments for Compensation in Cases of Industrial Diseases under the Compensation Act, 1906, and the Employers' Liability Act, 1880 (1919).**

Industry.	Fatal Cases.	Sum Paid.	Disablement Cases.	Amount Paid.
Factories:		£		£
Cotton	—	—	3	50
Wool, shoddy, etc.	3	445	45	426
Other textiles	1	300	3	25
Wood	—	—	4	96
Metals (extraction)	1	200	27	1,446
Engine and shipbuilding	—	—	30	1,330
Other metal work	2	600	113	2,488
Paper and printing	—	—	11	479
China and earthenware	5	803	48	2,077
Miscellaneous	9	1,565	534	7,331
Total factories	21	£3,913	868	£15,748
Docks	—	—	10	253
Mines	1	200	9,174	225,422
Quarries	—	—	3	9
Constructional work	1	300	8	316
Railways: Clerical staff	—	—	—	—
Other servants	1	309	11	541
Grand totals	24	£4,722	10,074	£242,292

* Statistics of Compensation for Year 1919. Cmd. 1185.

TABLE IV.—*Statistics of Compensation for the Year 1920.**

Industry.	Fatal Cases.	Sum Paid.	Disablement Cases.	Amount Paid.
Factories:		£		£
Cotton	—	—	—	—
Wool, shoddy, etc.	2	525	23	353
Other textiles	—	—	4	19
Wood	—	—	5	43
Metals (extraction)	1	287	61	2,110
Engine and shipbuilding	2	375	44	1,180
Other metal work	1	300	80	2,289
Paper and printing	—	—	7	70
China and earthenware	10	1,989	53	3,676
Miscellaneous	8	1,232	707	12,190
Total factories	24	£4,708	984	£21,935
Docks	1	300	12	151
Mines	1	79	9,407	343,091
Quarries	—	—	8	52
Constructional work	—	—	6	214
Railways: Clerical staff	—	—	—	—
Other servants	1	300	8	238
Grand totals	27	£5,387	10,425	£365,684

* Statistics of Compensation for Industrial Diseases for Year 1920. Cmd. 1545.

TABLE V.—*Showing the Cases of Industrial Disease for which Compensation was Paid, Classified according to Disease and Employment* (1919).*

Disease.	Occupation.	Total Cases.
Mercury poisoning ...	Mines, 1; metals (ext.), 3; other metal work, 2; miscellaneous, 2	8
Anthrax	Wool, etc., 17; other textiles, 3; docks, 9; miscellaneous, 10	39
Phosphorus poisoning	—	0
Arsenic poisoning ...	Engine and shipbuilding, 1; miscellaneous, 8	9
Lead poisoning ...	Railways, 5; wool, etc., 1; metals (ext.), 18; engine and shipbuilding, 14; other metal work, 50; paper and printing, 7; china, etc., 51; construction work, 9; miscellaneous, 1	231
Benzene poisoning ...	Engine and shipbuilding, 2; miscellaneous, 1	3
Nitro- and amido-derivatives of benzene	Metals (ext.), 1; other metal work, 25; miscellaneous, 52	78
Dinitrophenol	—	0
Nitrous fumes	Mines, 3; miscellaneous, 13	16
Dope poisoning ...	Engine and shipbuilding, 3	3
Tetrachlorethane ...	—	0
Carbon disulphide ...	Miscellaneous, 3	3
Nickel carbonyl ...	Paper and printing, 1	1
Gonioma kamassi, or African box-wood	Wood, 1	1
Dermatitis	Mines, 3; cotton, 3; wool, 4; other textiles, 1; wood, 3; metals (ext.), 2; engine and shipbuilding, 5; other metal work, 28; paper, etc., 1; china and earthenware, 1; miscellaneous, 219	270
Ulceration of skin ...	Mines, 1; wool, etc., 8; metals (ext.), 1; engine and shipbuilding, 2; other metal work, 3; paper and printing, 1; china and earthenware, 1; miscellaneous, 104	121
Ulceration of mucous lining of nose or mouth	Mines, 1; other metal work, 2; miscellaneous, 16	19
Ulceration of cornea...	Miscellaneous, 1	1
Chrome ulceration ...	Wool, etc., 13; paper, etc., 1; miscellaneous, 37	51
Scrotal epithelioma (chimney-sweeps' cancer)	Other railway servants, 1; wool, etc., 4	5
Compressed-air illness	Mines, 1	1
Cataract in glass workers	Miscellaneous, 1	1
Nystagmus	Mines, 6,449	6,449
Beat hand	Mines, 1,149; quarries, 3; railway servants, 4; wool, etc., 1; metals (ext.), 3; engine and shipbuilding, 3; paper, etc., 2; miscellaneous, 7	1,172
Beat knee (miners) ..	Mines, 1,285	1,285
Beat elbow (miners) ...	Mines, 159; railway servants, 1	170
Beat wrist (synovitis of wrist and tendons)	Mines, 114; railway servants, 1; other metal work, 2	117
Ankylostomiasis ..	—	0
Glanders	—	0
Telegraphists' cramp	—	0
Writers' cramp ...	—	0
Epitheliomatous cancer	Other metal work, 1; miscellaneous, 43	44
Total cases... ...	... ...	10,028

* Statistics: Annual Return for 1919. Cmd. 1185.

TABLE VI.—*Showing the Cases of Industrial Disease for which Compensation was Paid, Classified according to Disease and Employment* (1920).*

Disease.	Occupation.	Total Cases.
Anthrax	Other railway servants, 1; wool, 12; other metal work, 1; docks, 8; miscellaneous, 7	29
Mercury poisoning ...	Other metal work, 2	2
Phosphorus poisoning	Miscellaneous, 1	1
Arsenic poisoning ...	Metals (ext.), 2; miscellaneous, 1	3
Lead poisoning ...	Other railway servants, 5; mines, 4; metals (ext.), 47; engine and shipbuilding, 21; other metal work, 52; paper, etc., 5; china and earthenware, 61; docks, 3; constructional work, 3; miscellaneous, 64	265
Benzene poisoning ...	—	0
Nitro- and amido-derivatives of benzene	Wool, 1; other metal work, 1; miscellaneous, 52	54
Dinitrophenol	Miscellaneous, 1	1
Dope poisoning ...	—	0
Nitrous fumes ...	Mines, 2; miscellaneous, 19	21
Tetrachlorethane ...	—	0
Carbon disulphide ...	Other railway servants, 1	1
Nickel carbonyl ...	—	0
Gonioma kamassi ...	—	0
Dermatitis	Mines, 5; wool, etc., 3; wood, 3; metals (ext.), 5; engine and shipbuilding, 4; other metal work, 16; paper and printing, 1; miscellaneous, 371	408
Ulceration of skin ...	Mines, 2; wool, etc., 6; other textiles, 3; engine and shipbuilding, 1; other metal work, 6; paper and printing, 1; china and earthenware, 2; metals (ext.), 1; miscellaneous, 81	103
Ulceration of mucous lining of nose or mouth	Mines, 1	1
Epithelioma	Miscellaneous, 22	22
Ulceration of cornea...	Other railway servants, 1; wood, 1; miscellaneous, 18	20
Chrome ulceration ...	Wool, etc., 3; wood, 1; miscellaneous, 63	67
Scrotal epithelioma ...	Mines, 1; metals (ext.), 2; engine and shipbuilding, 1; miscellaneous, 1	5
Compressed-air illness	Constructional work, 1	1
Cataract in glass-workers	Miscellaneous, 2	2
Nystagmus	Mines, 7,028	7,023
Beat hand	Mines, 762; quarries, 6; other railway servants, 1; other textiles, 1; metals (ext.), 3; engine and shipbuilding, 19; other metal work, 3; docks, 3; constructional work, 2; miscellaneous, 10	810
Beat elbow	Mines, 137	137
Beat knee	Mines, 1,387; quarries, 1; metals (ext.), 1	1,389
Beat wrist	Mines, 78; quarries, 1; metals (ext.), 1	80
Ankylostomiasis ...	—	0
Glanders	—	0
Telegraphists' cramp	Miscellaneous, 1	1
Writers' cramp ...	Mines, 1; miscellaneous, 1	2
Total cases... ...	... ...	10,453

* Annual Statistical Returns for 1920. Cmd. 1545.

to establish a system of accident insurance under the control or supervision of the State, and to report further, what alterations of the law will be required to remedy defects which experience has disclosed or to give effect to their recommendations."

The committee, after hearing evidence and procuring information from other sources, reported in 1920 (Report, 1920, Cmd. 816).

Several of the points dealt with in this report deserve some attention. The committee stated that the system of compensation, based upon the Workmen's Compensation Act, 1906, was of so comprehensive a character that it was a matter of immediate concern to the majority of the community, since it imposed a burden of upwards of £8,000,000 a year, and that its cost was an item which every business enterprise must take into account, as about fifteen millions of workers were reckoned to be within the scope of the Act.

It is more than likely that some of the recommendations of this committee will constitute amendments to the present Act, and therefore a consideration of some of these may with profit be reviewed.

One of the subjects of immediate interest to all interested in compensation work had relation to the question: Whether any modification of procedure under the existing Act was necessary or desirable. The conclusion arrived at, after reviewing the present procedure and suggestions for amendment thereof, was that there was no need for any radical revision of procedure. It was pointed out that at present the certifying surgeon was not empowered to give a certificate of disablement after the workman had recovered from his disablement, and that hardship was not infrequently experienced by a disabled workman merely because of his ignorance of the procedure which he ought to pursue. To meet this, the committee suggested that it should be made compulsory for an employer to exhibit in conspicuous

places in his works notices directing the attention of the workman to the application of the Act to the scheduled diseases and the special steps to be taken by him for the purpose of claiming compensation, said notice also to contain information of the necessity for notice of any accident, trivial or otherwise, to be given to a designated person in the works, and adding that an accident book should be kept in which an entry shall be made of all ascertained accidents.

Witnesses drew attention to difficulties arising out of the issue by the certifying surgeon of a certificate in irregular form, and that in consequence substantial hardship to the workman followed. The committee recommended, first, that appeals to the medical referee on the ground of technical irregularity or flaw in the form of the certificate should not be permitted, and that it should be the duty of the registrar under the Act to scrutinize carefully every application for an appeal, and if he finds the certificate irregular in form, to return it to the certifying surgeon for amendment and notify the parties; and, second, that in any case where a certificate has been given in an irregular form, it should be open to the certifying surgeon at any time to issue a corrected certificate. Our experience is, that such amended procedure would be advantageous, as in not a few instances in which irregularity in form or flaw of certificate constituted the sole ground for allowing the appeal; there was thus delay in payment of compensation to the workman concerned.

According to the form at present prescribed (Form 15) for the decision of the medical referee on an appeal, a medical referee is not required to do more than state after inquiry whether he dismisses or allows the appeal; and when he allows an appeal against a refusal of a certificate of disablement by a certifying surgeon to a workman, to fix the date of commencement of the disablement.

The committee pointed out that an appeal may involve two or three distinct questions—namely, (1) whether the workman is or is not suffering from the scheduled disease; (2) whether or not he is disabled by it; (3) whether the date of disablement, if any, fixed by the certifying surgeon is correct. The committee concluded that the medical referee should be required to give his decision on each separate point referred to him, and they suggested that an opportunity should be taken to revise the form accordingly. It appears to me that the foregoing suggestions of the committee are likely to meet with the concurrence and approval of most medical referees who have encountered the points involved, but who have found themselves powerless to deal with them in Form 15 as at present framed.

This leads to other considerations affecting medical referees which came within the purview of the committee. The number of referees in England in 1919 was 238, in Scotland 81, and in Ireland 45. Seventy-five cases were referred to them for report by judges, arbitrators, and committees; 404 cases by parties' agreement for certificates; in 533 cases they sat with judges as assessors; in 282 cases they decided appeals against decisions of certifying or appointed surgeons in giving or refusing certificates of disablement on account of industrial diseases, and in 163 of these the certificates appealed against were confirmed.

In 1920 the number of referees for England was 206, for Scotland 80, and for Ireland 45. They sat as assessors in 414 cases (Schedule II, 5); 47 cases were referred to them for report by judges, etc., under Schedule II, 15; in 473 cases they were referred to by joint agreement of parties (Schedule I, 15); in 368 cases they decided appeals under Section 8 (1) (*f*), and in 205 of these the certificates appealed against were confirmed. Comparison of the figures for these years reveals a substantial increase in the numbers of references under Schedule I, 15, and Section 8 (1) (*f*), but a substantial decrease in the use of their services under Schedule II, 5 and 15.

The duty of a medical referee to make a report regarding a disabled workman on "any matter which seems material to any question arising in the arbitration" under Schedule II, 15, dates back to the Act of 1897, while that of giving a certificate in cases referred to him through the registrar on the joint application of parties (Schedule I, 15) and that of sitting as an assessor with a judge (Schedule II, 5) were enacted for the first time in the Act of 1906, and were based on the report of the Departmental Committee on the Act of 1900.

The committee of 1919 deem it of great importance that the fullest use should be made of the services of the medical referee in any dispute relating to the cause and extent of the workman's incapacity. They were of opinion that it was advisable to extend Schedule I, 15, so as to provide that on an application being made the application may be made by *either* party in the dispute and on payment of the prescribed fee, and that in such case the registrar may, after hearing the parties and subject to a right of appeal from his decision to the judge, refer the matter to a medical referee. Respecting the employment of referees as assessors, the committee recommended that it should be open to *either* party, on giving security for the payment of the fee due to the referee, to obtain as of right a summons to the referee to sit as assessor, and further, that the referee should be given the right of asking through the judge questions of the witnesses, and of making, where necessary, a more thorough examination of the workman than is possible in court or in the judge's room.

State System of Insurance.

Having fully considered the question of the advisability or otherwise of instituting in this country a State System of Accident Insurance, the committee concluded that they

"do not recommend the establishment of a State System of Accident Insurance," but they recommended that "every employer—other than the Crown, a local or other public authority, a statutory company, or a householder in respect of servants not employed by him for the purpose of his trade or business—shall be required to insure with an insurance company or in a mutual association against workmen's compensation risk, unless excepted as hereunder provided,"

the exceptions being employers whose annual wage roll averages more than £20,000 over a period of three years, and who file an application to that effect accompanied by a declaration to the above effect and a certified copy of their balance sheet for the last trading year. The committee recommended that a substantial penalty should be provided for default so as to enforce compulsory insurance.

Not a little evidence was put before the committee regarding the necessary conditions which must be proved by a workman to ensure compensation for accident, the first being that he has sustained personal injury from an accident, and the second that it was an accident "arising out of and in the course of the employment." Suggestions were made by several witnesses, including county court judges, that the form of expression "arising out of and in the course of the employment" should be deleted from the Act, and that there should be substituted the expression "in the course of the employment," since in their opinion this latter expression would cover every occasion in which the relationship of master and servant would arise. While the committee agreed that "it is safe to say that no other form of words has ever given rise to such a body of litigation," they would not recommend any alteration in the existing form of words, observing that it was not without significance that other States in recent years, adopting legislation for workmen's compensation, have imported into their Acts the British form of words in the existing Act. They cite the fact that in all but four of the States comprising the United States of America the law reads that the accident must arise out of or result from the employment, and in all of these States, including the four indicated, the accident must happen in the course of the employment. The committee, therefore, recommended that the words of the present Act—"arising out of and in the course of the employment"—should remain unaltered.

The only other subject dealt with in the report of this committee which I shall consider is that relating to medical and surgical aid. The committee were much impressed with the evidence of numerous representatives of employers, trade unions, and insurance companies, as to the need for a comprehensive system of medical and surgical services for the rehabilitation of an injured workman and the restoration of his earning capacity. It was put in evidence that in some of the United States of America extensive provision of this kind exists, but that in this country nothing beyond the restricted scope of medical benefit under the National Health Insurance Acts was in operation. These Acts cover about fifteen million insured persons. Apart from Ireland—where no medical benefit is provided and where about 700,000 persons are insured under these Acts—what all these persons are entitled, according to the Medical Benefit Regulations, to receive is—

"the treatment which a practitioner is required to give to his patients and comprises such treatment as is of a kind which can

consistently with the best interests of the patient be properly undertaken by a general practitioner of ordinary competence and skill."

This, however, as was pointed out, does not cover the needs of injured workmen, and further special services are required, such as massage, *x*-ray treatment, hydrotherapeutic treatment, in-patient hospital treatment, use of convalescent homes, and other forms. While the committee had no doubt of the great value of these in expediting the recovery of disabled workmen and their earning capacity, they did not think that the burden of providing these could be placed either on the shoulders of the workmen or of the employers, but were of opinion that the solution of the matter lay in the direction of an extension of the services under the National Health Insurance Acts. As they understood that the Ministry of Health had under consideration a further development of medical services for the insured population generally, they would recommend that the extra services for injured workmen under the Compensation Acts should come under such a scheme and be co-ordinated therewith. They did not, therefore, feel justified or able to formulate a scheme. This, it will be obvious, opens up a very large question, and we must await what the future will bring.

The Stewart Prize.

AWARD TO DR. J. C. McVAIL.

THE Stewart Prize of the British Medical Association was presented to Dr. J. C. McVail at the General Meeting of the British Medical Association in Glasgow on the evening of Tuesday, July 25th.

The prize was founded by the late Dr. Alexander Patrick Stewart, who graduated M.D. Glasgow in 1838, and afterwards became physician to the Middlesex Hospital; he was among the earliest to give attention to sanitary questions and among the first to distinguish between typhus and typhoid fever. The primary object of the Stewart Prize is to afford recognition of important work already done or of researches instituted and promising good results regarding the origin, spread, and prevention of epidemic diseases.

The prize has been awarded to Dr. McVail in recognition of the important work he has done during a long life devoted to public health. He began his professional career in 1873. He was first of all in general practice and his association with public health dates from the time when he began to assist the medical officer of health for Kilmarnock, whom he ultimately succeeded. He became the first medical officer of health for the counties of Stirling and Dumbarton in 1891, a position he held for over twenty years. His painstaking investigations, his lucid reports, and his wisdom in counsel displayed during the period of his appointment placed him in the front rank of public health officers. His reputation as a far-sighted and impartial investigator was so well established that when, in 1907, the Royal Commission on the Poor Laws and Relief of Distress desired to have special inquiries made into the methods of administering indoor and outdoor relief, Dr. McVail was chosen to make those inquiries, and his report to the Commission is a fascinating record of patient industry and clear thinking.

Dr. McVail's attention was first turned to vaccination by the study of statistics of Kilmarnock for the years 1723 to 1764. The records of death afforded appalling evidence of the great prevalence of small-pox among children in the eighteenth century. He was thus led to make an extensive study of vaccination; he embodied the results in a book entitled *Vaccination Vindicated*, the first edition of which appeared in 1839; it at once became the chief authority on the subject. His knowledge of the subject was so extensive that his evidence before the Royal Commission on Vaccination occupied no fewer than twelve days. In 1919 he brought up to date our knowledge of the subject in the Milroy lectures delivered before the Royal College of Physicians of London.

When the National Insurance Act of 1911 came into force Dr. McVail was appointed Deputy Chairman of the Scottish National Insurance Commission, a position he held with great advantage to the community generally until, on the abolition of the Commission and the creation of the Scottish Board of Health, he became the medical officer concerned with health insurance; he has just retired from the service. While Deputy Chairman of the Scottish Insurance Commission he was a member of the committee appointed by the Commission which inquired into the medical services in the Highlands and Islands, and he was also a member of the Astor Committee on Tuberculosis.

"THE BOOK OF GLASGOW."

EVERY member attending the Annual Meeting of the British Medical Association in Glasgow this week has received a copy of the *Book of Glasgow*,[1] whose appearance was briefly noted in our last issue. This handsome volume of 258 well-printed pages, with more than 50 illustrations on art paper, forms an agreeable introduction to the city and its institutions, and will be prized as a souvenir. Its object is to give the visitor a series of impressions of Glasgow from various points of view, and the Printing and Publishing Committee must be congratulated both upon their choice of authors and upon the excellence of the production. The material is arranged in nineteen sections, and each writer has followed the method best suited to his own outlook and style of composition, so that the general effect is one of pleasant variety. Thus the volume, as the chairman of the committee (Dr. William Snodgrass) insists in his preface, is not to be regarded in any sense as a guidebook but as a collection of articles on the most interesting features of Glasgow and its history, written by a group of distinguished journalists and literary authorities, with the general editorial assistance of Mr. R. T. MacLennan of the staff of the *Glasgow Herald*.

The first chapter, from the pen of Professor Glaister, gives an interesting historical sketch of the University from its foundation in 1451 down to the present time, with special attention to the development and progress of its medical school, and to the library and Hunterian collection. Dr. Oliphant describes the Royal Faculty of Physicians and Surgeons and its founder, Peter Lowe, who obtained a charter from the King in 1599. Dr. John Fergus gives a comprehensive account of the medical institutions of Glasgow, in somewhat fuller detail than his recent article in our columns. Readers of the JOURNAL will recognize also Dr. John Patrick's interesting article on the Glasgow School of Medicine, Mr. William Power's sketch of Glasgow to-day, and the poem on the arms of the city of Glasgow written by Dr. Robert Mayne, first professor of physick in the University from 1637 to 1646. Other verses comprise the "Kirkyard Eclogue" in honour of the old Royal Infirmary, written in the Doric by the late William Findlay, M.D. ("George Umber"), and the ingenious and well-turned lines by Dr. John Fergus, entitled "Maister Peter Redivivus," wherein the shade of Peter Lowe is supposed to be paying a visit to the Faculty:

> "Imagine Peter, as I say,
> Meeting our President to-day."

The remaining articles, with the exception of Mr. W. Stewart's remarks on Glasgow medical men and literature, give impressions of the city from standpoints other than the medical. They include brief historical notes on ecclesiastical Glasgow in pre-Reformation times, by John Edwards, LL.D., on Glasgow of old, by George Eyre-Todd, and on the traditions of the trade houses, by Harry Lumsden; a sketch of the Clyde, its shipping and its docks and shipyards, by Neil Munro; descriptions of business life in Glasgow and its municipal services, by G. B. Primrose and James Willock; notes on Glasgow artists and the works of art preserved there, by T. C. F. Brotchie and R. T. MacLennan; a study in contrasts entitled "Glasgow a frontier fort," by George Blake; and, lastly, an outline of the history of golf in this neighbourhood and of the courses open to members during the Annual Meeting.

[1] *The Book of Glasgow.* Prepared under the direction of the Printing and Publishing Committee for the Ninetieth Annual Meeting of the British Medical Association, July, 1922. Glasgow: Alex. Macdougall. (Pp. 258, with 53 plates. Price 5s.)

The Gold Medal of the British Medical Association.

THE Gold Medal for Distinguished Merit of the British Medical Association was presented to the Right Hon. Sir T. Clifford Allbutt and to Lieutenant-Colonel Arthur Martin-Leake, V.C., F.R.C.S., at the general meeting of the British Medical Association in Glasgow on the evening of July 25th, 1922. The presentations were made by the President, Sir William Macewen, F.R.S., on behalf of the Association. The medal for distinguished merit was instituted by the British Medical Association at its annual meeting in Manchester in 1877. The medal is awarded on the recommendation of the Council to some person who shall have conspicuously raised the character of the medical profession by scientific work, by extraordinary professional services, or by special services rendered to the British Medical Association. On this occasion the medal was in each case accompanied by a testimonial or address stating the grounds of the award, and this practice will be followed in future.

BRITISH MEDICAL ASSOCIATION MEDAL FOR DISTINGUISHED MERIT.

SIR CLIFFORD ALLBUTT.

The following is the text of the address presented to Sir Clifford Allbutt:

To the Right Honourable

SIR CLIFFORD ALLBUTT, K.C.B., M.D., LL.D., F.R.S., Regius Professor of Physic in the University of Cambridge, President of the British Medical Association, 1916–1921.

We delight to honour in you a great physician, a great teacher, and a wise friend in counsel. From the time when, as a young man, you joined the staff of the Leeds Medical School, the high reputation of which you were destined to enhance, you have never ceased to uphold the traditions of British Medicine, among whose leaders your name will always be numbered.

We recall how fifty years ago your book on the *Ophthalmoscope in Medicine* not only taught the profession the value of a new means of investigating disease, but revealed a new clinical observer whose future work, should his life be spared, could not fail greatly to benefit the science and practice of medicine. To these early days, too, belong your epoch-making investigations into the cause of certain forms of disease of the brain and spinal cord and into the effects of strain on the heart and great vessels. It was at this stage also of your career that you invented the short clinical thermometer, which at once superseded the clumsy instrument some of us can remember holding precariously in the mouths of reluctant patients; it was a mechanical improvement indeed, but one that greatly helped us in our daily work, and one the need for which could only have occurred to a physician actively engaged in clinical practice.

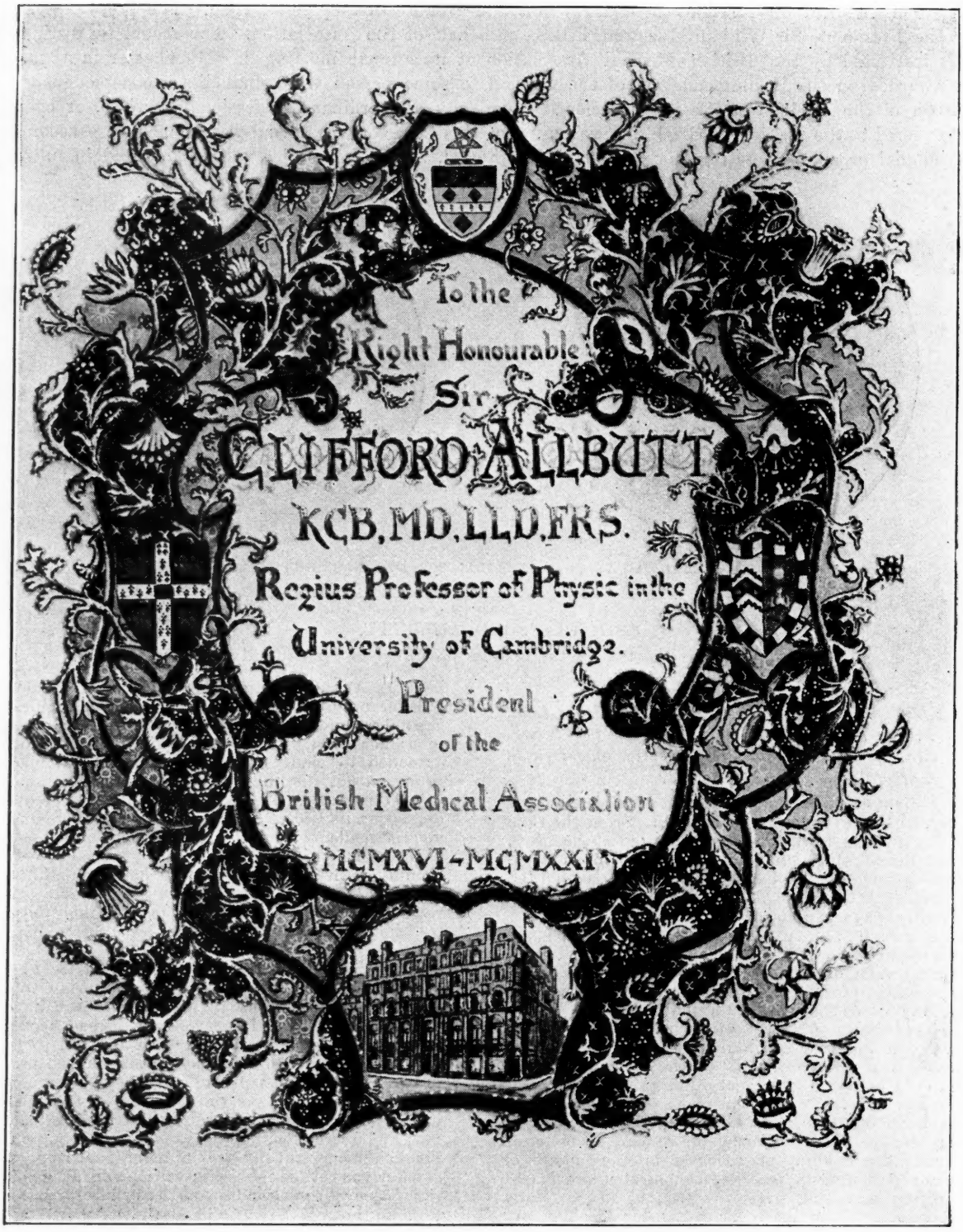
A little later the outspoken criticism contained in your Goulstonian lectures on visceral neuroses had a wholesome influence in moderating the extravagances of a passing phase of medical practice.

We recall also how in two addresses to the British Medical Association you unfolded ideas which have occupied a large place in your mind. In your address as President of the Section of Medicine in 1882 and again in the Address in Medicine, delivered in the hall of this ancient University, when the Association, in 1888, last held its Annual Meeting in Glasgow, you pleaded for a broader outlook, and demanded that our inquiries into the nature and causes of disease should not be limited to man, nor even to the animal kingdom, but should be extended to plants which present, in a simpler form, problems not dissimilar. That the dominant principle of this message, the need for unity in the study of disease in its widest aspects, had always remained with you is made clear by a passage in your Presidential Address at the opening of the Annual Meeting at Cambridge in 1920. Though you had then still to speak rather of your hopes than of their realization, you were able to point to some encouraging signs that the importance of the matter was beginning to be understood.

The expectations built on the originality and wide grasp of essential principles displayed during this early period have been more than justified. You have been granted long life, and every day of it has been full of labour, as congenial as it has been fruitful, to advance the science of medicine, full of service for the profession to which you have unsparingly given sympathy and help, and full, also, perhaps the greatest of your merits, of inspiration for others. Nor did you unwisely neglect due rest and recreation, finding them, after your energetic fashion, in the arduous sport of mountaineering.

After you settled in Leeds, your name as a helper in time of need quickly became known to your brethren alike in the great towns and in the northern valleys of Yorkshire. It was therefore with no little regret that the profession heard in 1889 of your acceptance of the position of Commissioner in Lunacy. Looking back we may, perhaps, perceive that this episode was needed to complete your experience of medicine in all its aspects. Everything that had gone before was, we may now see, but a preparation for the great office to which you were called in 1892.

You returned to Cambridge, your old University, at a time of transition, when the possibilities of science, not merely for its technical achievements, but as a mental discipline, were being forced by Humphry and



Photograph (by Mr. W. G. Parker) of the frontispiece of the Address presented to Sir Clifford Allbutt with the Gold Medal of the Association. The dominant colours in the original are red and blue, enhanced by gold. It has been designed and painted by Mr. Frederic G. Hallett.

Michael Foster on the attention of those who stood in the ancient ways, and when a call to return to the study of nature was finding an echo in halls where for generations it had hardly been heard. We do not doubt that your own attainments as a scholar and historian, attributes the fruit of which are to be found in many addresses and have in these later days so eminently been displayed in your monumental work on *Greek Medicine in Rome*, contributed not a little to the achievement of the task you undertook. How great that task was, and in how large measure its accomplishment was due to your strength of purpose, and gentleness in method, to that combination of sweetness and light praised by Matthew Arnold, we will not stay to consider. It has already become part of the history of the University, and the chapter we rejoice to think is not closed.

But you have not allowed your exacting duties as Regius Professor of Physic to deter you from continuing to add to the store of medical knowledge, nor from taking an active share in its dissemination. The *System* with which you first endowed the profession in 1896, though the work of many minds, reflected everywhere the qualities of your own, and displayed an anxiety, while taking advantage of the latest results of laboratory work, always to maintain the supremacy of clinical methods in the practice of our art. The conception of hyperpiesis finally presented in your book on *Diseases of the Arteries and Angina Pectoris*, a work of your later years, would alone have sufficed to establish the reputation of a lesser man.

We, members of the British Medical Association, are proud and grateful that you were our President through the troubled years of war, and that after the great meeting of the Association in Cambridge in 1920 the Crown added to its earlier appreciation the further honour of calling to the Privy Council the youthful Nestor of our profession.

In token of our respect and affection for you as a man, of our admiration for you as a physician and teacher, and of our gratitude to you for the generous spirit in which you gave freely of your time and wisdom to the Association during a period of unexampled strain and difficulty, we ask you to accept at the hands of our President the British Medical Association's Gold Medal for Distinguished Merit.

July, 1922.

The Address is illuminated and written in a bound volume of fifteen pages, including title-page. It is a very beautiful work of art, for the production of which the British Medical Association is greatly indebted to the artistic skill of Mr. Frederic G. Hallett. It has been to him, we know, a labour of love. The result is a production worthy of the occasion and one which, we feel confident, will prove grateful to Sir Clifford Allbutt as some memorial, with the medal, of his long connexion with the Association and of the great services he rendered to it while its President during so many years of the war.

Mr. Hallett has designed and illuminated the title-page, decorated panels, and tail-pieces; and the text of the address has been written in gold, colour, and black, by Miss Melinda M. Baker. The title-page, which is richly illuminated, contains in the upper border the arms and crest of the Regius Professor of Medicine, in the left border the arms of Cambridge University, in the right border the arms of Gonville and Caius College, and in the lower border a water-colour painting of the building of the British Medical Association. Page 1 has a decorated panel enclosing a water-colour painting of a corner of Park Square, Leeds, where Sir Clifford Allbutt practised when physician to the Leeds Infirmary; in the distance is a view of the Leeds Town Hall. The initial letter of this page encloses a water-colour painting of Lake Windermere. Pages 3, 5, 7, 9, and 11 have decorated panels enclosing water-colour paintings. On page 3 there is a painting of the front view of Caius College, Cambridge, with the Senate House. On page 5 is a water-colour sketch of the Gate of Honour, Caius College, at sunset. Sir Clifford Allbutt was an undergraduate of Caius College and is now a Fellow. On page 7 the panel contains a water-colour painting of the Eiger, Moench, and Jungfrau Mountains—a reference to Sir Clifford Allbutt's achievements as a mountaineer. On page 9 there is in the panel a water-colour painting of Tree Court, Caius College, and on page 11 a water-colour drawing of the "Backs" at Cambridge, showing Clare College Bridge over the Granta. On page 12 there is a tail-piece, including the monogram of the British Medical Association, and on page 14 a decorated panel, enclosing the signatures of the officers of the Association. The volume is bound in rich brown morocco leather and hand-tooled in gold by Messrs. C. and C. McLeish, and the ornamentation on the front cover, which includes the monograms of Sir T. Clifford Allbutt and the British Medical Association, is from the design of Mr. Hallett.

ARTHUR MARTIN-LEAKE, V.C. (WITH BAR), F.R.C.S.

The following is the text of the address presented to Lieutenant-Colonel Arthur Martin-Leake:

To ARTHUR MARTIN-LEAKE, V.C. (with Bar), F.R.C.S.

The British Medical Association in 1877 instituted a Medal "for Distinguished Merit" to be awarded under such conditions as the Council of the Association might determine. One of the conditions of the award was that the Medal should be given to any person "who shall have conspicuously raised the character of the medical profession by scientific work, by extraordinary professional services, or by special services rendered to the British Medical Association."

Members of the Association noted with great satisfaction that in 1902 His Majesty King Edward VII awarded to you the Victoria Cross under the following circumstances:

> "For great devotion to duty and self-sacrifice at Vlakfontein, February 8th, 1902, when he went out into the firing line to dress a wounded man under very heavy fire from about forty Boers only 100 yards off. When he had done all he could for him he went over to a badly wounded officer, and while trying to place him in a more comfortable position he was shot three times. He only gave up when thoroughly exhausted, and then he refused water until other wounded men had been served."

In February, 1915, the following notice appeared in the *London Gazette*:

> "*Bar to Victoria Cross.* For most conspicuous bravery and devotion to duty throughout the campaign, especially during the period October 29th to November 8th, 1914, near Zonnebeke, in rescuing, whilst exposed to constant fire, a large number of the wounded who were lying close to the enemy's trenches."

You were the first medical man and the first of His Majesty's subjects to be awarded a Bar to the Victoria Cross. This is a distinction of which not only yourself but the profession and the Association of which you are a member have every reason to be proud. On behalf of the Council of the British Medical Association we ask you to accept at the hands of our President the Association's Gold Medal for Distinguished Merit.

July, 1922.

The Address, suitably illuminated and engrossed, is contained in a volume bound in blue morocco, bearing in gold on the cover the symbol of the staff and entwined serpent and the monogram of the British Medical Association. The Address, as is that to Sir Clifford Allbutt, is signed by Professor Drummond, President, 1921–22; Sir William Macewen, President; Dr. Wallace Henry, Chairman of Representative Meetings; Dr. R. A. Bolam, Chairman of Council; and Dr. W. E. Haslip, Treasurer of the Association.

THE BRITISH PHARMACEUTICAL CONFERENCE.

PRESIDENT'S ADDRESS.

THE annual British Pharmaceutical Conference was opened at University College, Nottingham, on July 26th, when the President, Professor H. G. GREENISH, D.Sc.Paris, delivered an opening address on pharmacognosy and the pharmaceutical curriculum. The subject is especially his own by reason of his position as Professor of Pharmaceutics in the School of Pharmacy of the Pharmaceutical Society.

Pharmacognosy, he said, is a pursuit for which the pharmacist is particularly fitted by the nature of his vocation and the opportunities afforded him of becoming expert. The unique museums, herbaria, and library of the Pharmaceutical Society and its fine record of eighty years' work entitles it to be regarded as the headquarters of pharmacognosy in this country.

Definition of Pharmacognosy.

Explaining what pharmacognosy actually comprises, the President showed that its description as "to know what the drug is, what it costs, and how long it will keep," is inadequate. A proper knowledge of it required the study of botany, chemistry, physics, and zoology as well as a good acquaintance with geography, history, ethnology, and etymology. The practical application of pharmacognosy was the work of the pharmacist, who in learning the practice of his vocation should realize that the higher responsibility of those who provide the public with medicines calls for a complete understanding of the origin, mode of preparation, and constitution of his materials.

Preliminary Education.

He drew attention to the necessity of a good preliminary education, and deplored the decision taken by the Pharmaceutical Society in 1897 in reference to the entrance examination; the effect of an inferior standard in preliminary education during the last twenty years had been painfully evident to his own observation. The effort of teachers during this period to erect a solid edifice on insufficient foundation had in many cases proved to be an impossible task. The Royal Commission on University Education in London had reported to the same effect, and had pointed out that in the absence of a sound general education a large part of the benefits of university training are lost.

Scientific Training.

He next dealt with the arrangement of the scientific training to be followed. He placed botany foremost on account of its important relation to drugs. Should this knowledge, he asked, be acquired previously to pupilage in pharmacy or afterwards? Opinions varied: in Belgium the scientific training precedes the entrance to practice of pharmacy, in France the accessory sciences were taken up later; but in both cases the scientific training was continuous. In England the entrant into pharmacy was debarred from adopting the Belgian plan in its entirety, and had usually followed the French plan simply. Under the present (new) regulations he might adopt an intermediate course, but this would involve a two years' interruption in the continuity of his studies, and such interruption had been observed invariably to produce bad effects. The experience of those who had to interrupt their studies on account of the war afforded a notorious example.

Turning to the method of training in botany, he pointed out the need for a specialized course of instruction adapted to the particular objects in view. The Minister of Education in Austria had some years ago expressed the same view.

The President next described in some detail the scheme of training proper for students of pharmacognosy, emphasizing the importance of instruction in the use of the microscope. Referring to the syllabus of examination for pharmacists, he quoted from the report of the Royal Commission the statement:

> "The syllabus is a device to maintain a standard among institutions which are not all of university rank. The effect upon the students and the teachers is disastrous. . . . They cannot pursue knowledge both for its own sake and also for the sake of passing the test of an examination. And the teachers' powers are restricted to the syllabus; their freedom in dealing with their subject in their own way is limited."

The syllabus, if such there must be, should be couched in terms as general as possible. Both teachers and examiners should be pharmacists, either men or women, who had received a thorough training in pharmacognosy.

Advanced and Post-graduate Training in Pharmacognosy.

For advanced training in pharmacognosy, or that by which men become leading authorities on sections of the subject, he commended to all students higher ideals than those merely sufficient to qualify them for the practice of their vocation. In this connexion the need of post-graduate work and opportunities for carrying out research should be recognized. It would not be too much to say that the training in pharmacognosy was incomplete until research had been undertaken and accomplished. There was now an incentive to students to continue in this aim, for by means of work accomplished in the Pharmaceutical Society's Research Laboratories they could proceed to the degree of Doctor of Philosophy. It was desirable that pharmacognosy should be accepted by universities as one of the subjects for the degree of Bachelor of Science, as had been done by the Universities of Manchester and Glasgow.

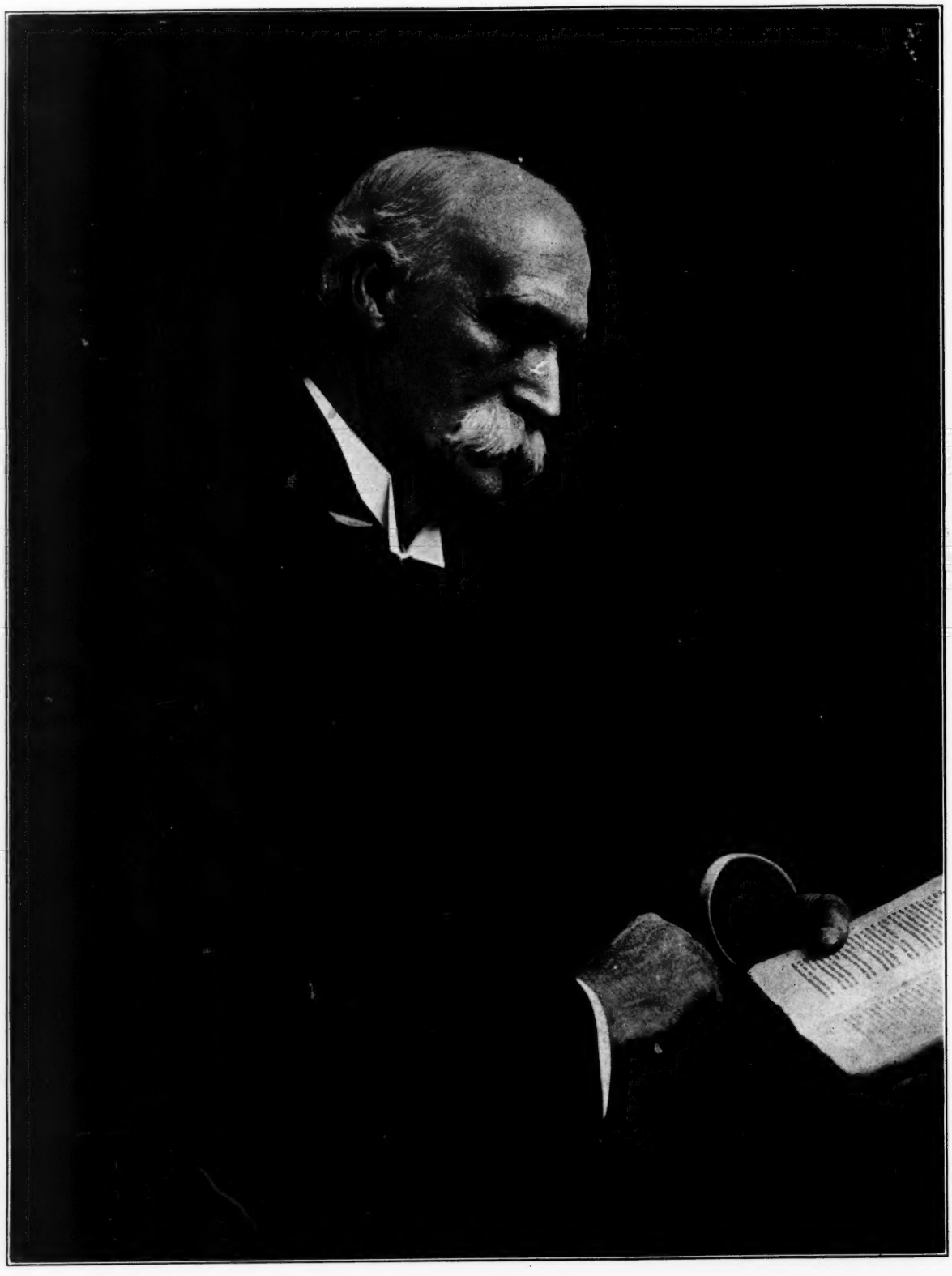
The field of pharmacognosy was wide, and the problems awaiting solution were diversified. They required men of varied qualifications and abilities such as Bourquelot, Power, Henry, Perrot, Farr, Wright, Goris, and that unrivalled master of botanical identification, E. M. Holmes. He deplored the lack in this country of an experimental station for pharmacognosy such as that at Wisconsin for the cultivation and study of drugs; that was a co-operative enterprise between the department of pharmacy of the university and a department of the Bureau of Plant Industry of the United States. It received 5,000 dollars a year from the Federal Government, and was aided by pharmaceutical firms interested in the work. At present the Pharmaceutical Society's Research Laboratories had no place where the material necessary for their work could be grown; they depended for assistance—always most willingly given—on the Director of Kew Gardens and the Curator of the Chelsea Physic Garden.

One of the most important of the subjects awaiting investigation was that of the part played by alkaloids in the metabolism of the plant. Until light was thrown on this question no rational scheme was possible for obtaining larger proportions of alkaloids from plants. The advantages for the prosecution of this work enjoyed by this country, with the variety of her colonial possessions, were recognized long ago, and were pointed out by Dr. Jonathan Pereira when appealing for the appointment of a scientific committee for the promotion of pharmacological knowledge.

University Degrees for Pharmacists.

Professor Greenish went on to describe the conditions under which degrees in pharmaceutics were granted by the Universities of Manchester and Glasgow. A proposal had been made for the establishment of a College of Pharmacy which should be recognized by the University of London. The President further reminded his hearers of the objects of the great men who were the founders of the Pharmaceutical Society, and alluded to the fact that the chemical laboratory established by them for the teaching of chemistry was the first in this country. At that time the Committee for Promotion of Pharmacological Knowledge consisted of fourteen members of the Society's Council, with fourteen honorary members and others, among whom no fewer than eleven were Fellows of the Royal Society; this showed the high recognition then paid to their body. For many years the Council of the Pharmaceutical Society had continued its endeavours to raise the Society to the rank of a learned body, and so to acquire the influence that it ought to possess, but recently that policy had receded into the background. At this moment, however, he felt hopeful of a revival of the former spirit; he could distinguish evidence of a determination to foster scientific work, and he expressed the hope that the Society, mindful of its great traditions, should set its educational policy steadfastly in the direction indicated by the wisdom of its founders, should foster the love of the calling which distinguished those early years, and so ensure for itself due appreciation.

A CONFERENCE of representatives of metropolitan county councils was held at the Islington Town Hall last week to consider the need for the amendment of the law relating to the sale of unsound food, so as to empower sanitary authorities to prosecute the wholesaler as well as the retailer. The conference adopted a resolution calling the attention of the Minister of Health to the necessity for the law relating to the sale of unsound food being amended by the addition of the following words at the end of section 47 (3) of the Public Health (London) Act, 1891, "and had taken reasonable steps to ascertain that the article was not in such a condition as to be liable to be seized and condemned under this section." It was further resolved to ask the Minister to receive a deputation on the matter.



Annan, Photo, Glasgow.]

William Macewen

British Medical Journal.

SATURDAY, JULY 29TH, 1922.

BRAIN SURGERY.

THE Presidential Address delivered to the British Medical Association by Sir William Macewen on Tuesday evening is published in full in this issue. Its main topic was the history and present position of brain surgery, and it will be read with interest by all—surgeons, physicians, and general practitioners alike—not only in Great Britain, but throughout the world. It is from the mouth of one of the pioneers, from one who all his life has laboured to advance knowledge with consummate precision, integrity, and skill.

It will be somewhat astonishing to the younger generation to realize that almost all of our modern knowledge of cerebral function has been built up within the lifetime of one still happily amongst us. Sir William Macewen tells us that he was taught as a student that the brain acted as a whole, and that there was then no recognition of functional localization. He goes on briefly to sketch some of the outstanding advances which have been made. Chief amongst these is the recognition that different physiological functions dwell in different parts of the brain. This discovery is paramount, because it was through it that surgical removal of pathological products became possible. For the successful treatment of cerebral tumours three conditions must be fulfilled: first, that the presence of a tumour be recognized; second, that the situation of this tumour should be accurately forecasted; and third, that a technique should be employed which will allow of its removal. The recognition of the presence of a cerebral tumour is often not difficult, especially to those who are able to make an examination of the optic nerve-head.

There is a general impression that brain tumours are rare, and not often to be thought of. Rarity is a comparative term, but in the sense in which the word is employed in the designation of rare diseases, it is not applicable to cerebral tumours. It is true that these neoplasms are not extremely common, but they are not rare in the sense, for instance, that spinal cord tumours are rare. If we turn to the statistics of the more famous neurological surgeons we get the impression perhaps that intracranial tumours are even plentiful. Dandy, for example, in a recent paper states that within a given period more patients were admitted to the Johns Hopkins Hospital suffering from tumours of the brain than from tumours of any other organ. In this instance there is a special reason for abundance—namely, the practice of ventriculography which Dandy has introduced and (perhaps unfortunately) popularized.

We have thought it just to make these remarks on the frequency of cerebral tumours because there are practitioners who feel that the occurrence of a cerebral tumour in their own practice is an unlikely contingency. It arises partly out of this that, as a general rule, cerebral tumours come to the surgeon too late. There is a feeling abroad that a decompressive operation is about as much as can reasonably be done for such a case. This is almost the same as saying that a gastro-enterostomy is the most that can be effected for a pyloric carcinoma—palliation, not cure. We must aim higher than that. We must aim at the actual removal of the tumour, just as we should were the growth elsewhere in the body. This can be done with least risk when the tumour is small, and we are thus brought back to the importance of functional localization. As Sir William Macewen says, an exploratory operation on the cranial chamber, after the manner of an exploratory coeliotomy, is not feasible. Within the abdomen it is possible to be upwards of twenty feet wrong in one's diagnosis—to believe the disease to be a duodenal ulcer and to find a diseased appendix—and, without detriment to the patient, to rectify matters through the one incision. Within the skull this happy state of affairs does not obtain. It is to a large extent the need for this nicety of knowledge which has attracted so many to what some of the more easy-going amongst us regard as an impossible allegiance. Sir William Macewen's name ranks amongst the highest of those who in these isles have worked to such purpose in this field. And this is no small thing to say, for the British school of neurology has always been in the very vanguard of scientific progress, and we are justly proud of it. The President's book on pyogenic diseases of the brain and its membranes, published many years ago, remains to this day the classical monograph on the subject. And his remarks this week, out of his ripe experience, complete the tale. What he has to say of cerebral tubercle is of great interest, particularly with regard to the secondary infection of latent tuberculous foci.

In the realm of brain surgery much remains to do. We have not yet by any means reached the limits of possibility in localization of tumours of the so-called "silent areas," but little by little even those fastnesses are being reduced. Nor have we reached anything like perfection in our methods of dealing with brain tumours even when exposed at operation. Earlier diagnosis should help us to effect cures rather than achieve only some amelioration.

It has been our President's lot to have worked courageously, long, and untiringly, and he is indeed fortunate to see such fruition before eyes which in the early pioneering days must often have been baffled and dejected.

INDUSTRIAL DISEASES AND FORENSIC MEDICINE.

THE address by Professor Glaister, President of the Section of Industrial Diseases and Forensic Medicine of the Annual Meeting of the British Medical Association in Glasgow, published in full in this issue, touches on various matters of interest and importance, not merely to specialists, but to the whole practising profession of medicine. The scope of forensic medicine, as taught in the schools, has varied from time to time in accordance with the extending relations of medicine to the State, and it is clear that such changes are not at an end. Sometimes one subject within the course of lectures has come to bulk so largely as to make it desirable to establish a separate lectureship, especially in Public Health. At another time a teacher, looking to new demands, may have concluded that, as general practitioners are not likely to be called on, or to be qualified to make, a chemical analysis of the contents of a stomach in a case of suspected poisoning by an alkaloid, he might properly cut down the time devoted to toxicology. At present the doctor's responsibilities under the Acts relating to industrial diseases are becoming more and more onerous, and Professor Glaister has done wisely in directing special attention to the subject.

Before entering on it, however, he raised two general questions: one is whether all matters involving the application of the science of medicine to the law should not be included in the course of forensic medicine. While he reaches the conclusion that the time is not ripe, he admits that there is much to be said on both sides. It seems to us that here there need not be uniformity of method in all schools, but that every group of

teachers should agree between themselves as to the best system in the circumstances of their own institution. The essential is that the legal aspects of every part of his tuition should be made clear to the student. Whether the duty should be distributed, or be concentrated under one teacher, is a detail, though doubtless an important one, and, looking to pending demands on the student's time, overlapping should be most carefully avoided. The other general question is whether law students should not be required to pass an examination in forensic medicine as an essential part of their qualifying courses. Dr. Glaister urges that they should, and surely he is right. It appears that already in Scotland every candidate for the Bar must study and pass in forensic medicine. Law and medicine would then react beneficially on each other; a medical witness would be the better able to answer if counsel could in some measure meet him on his own ground. We have, indeed, heard it said of a famous teacher who conducted separate classes for law and medical students, that he had a very attractive way of dealing with his subject from the point of view, in the one class, of a doctor in the witness box, and in the other class, of a lawyer cross-examining the doctor. When two of his old pupils came against each other in a disputed case each would no doubt recognize, in thrust and parry, the influence of their common master, who was himself unsurpassed in skill of fence.

Professor Glaister's main subject was industrial diseases. He traced the history of compensation to workmen from the days when common law was the only resort, on through the successive Acts of 1880 (the Employers' Liability Act); the first Workmen's Compensation Act of 1897, which imposed liability quite independently of contributory negligence; the Act of 1900, which extended the law to cover agricultural employees; and the third Compensation Act, which has remained unaltered in terms, though not in administration, since it was passed in 1906. Though still excluding casual labourers and share fishermen, it embraces practically all other workers earning up to £250 a year under a contract of service. It also provides for the appointment of medical referees to sit with the tribunals in disputed cases as assessors, of whom, as it happens, Dr. Glaister is one, acting for the great industrial area of Glasgow and the West of Scotland. A table is quoted showing that the number of workmen under the Act was well over eight millions in 1920, and that the industrial diseases scheduled have increased about fivefold since 1906. In respect of silicosis a special Act was passed in 1918, and is notable for having applied to such workers the principle of periodical medical examination apart from existing illness, and solely for the purpose of disease prevention—a principle which, when suggested for general adoption, was rejected by the Royal Commission on the Poor Laws in its report in 1909, but is now in operation throughout the whole of school life.

An important Departmental Committee was appointed in 1919 to inquire into the present system of workmen's compensation, and to advise whether accident insurance should be adopted. Some of the findings of that Committee in its report of 1920 are discussed in Professor Glaister's address. He mentions without comment the Committee's reckoning that about fifteen millions of workers were within the scope of the Act. The table which he had already given states the figure for the same year (1920) as between eight and nine millions. Under the National Health Insurance Act fifteen millions must have been approximately correct for Great Britain even in the early years of that Act, whilst the wage limit of £250 a year, under the Compensation Act of 1906, together with its exclusion of casual labourers, would have led us to suppose the tabulated figure (8,348,150) to be correct, rather than the estimate of fifteen millions. The Committee recommended that the wage limit should be raised from £250 to £350, looking to the general rise in wages, but that was in 1920, and since then there has been a fall. The total annual cost to employers in the seven industrial groups increased from £2,700,325 in 1910, to £4,616,723 in 1919, and further to £5,978,009 in 1920, whilst the total burden of the Act exceeded £8,000,000 a year.

It is not surprising that the Departmental Committee reported in 1920 that special inquiry should be made as to miners' nystagmus. In 1919 compensation was paid for 6,449 cases of that affection, and in 1920 for 7,028 cases. Apart from Professor Glaister's address we may call attention to the fact that in the present year a special committee of the Medical Research Council issued a very important first report on the subject. It concluded that the essential cause of the disease is deficient illumination owing to the low power of ordinary safety lamps, and to absorption of light by coal and by dust-covered surfaces. The disease is very prevalent, but only a small proportion of cases are so severe as to cause even temporary incapacity for underground work. The Committee recommended that the illuminating power of safety lamps be greatly increased, or that an electric light be fixed on the miner's head or belt, and that the walls of the workings apart from the coal face be whitewashed. It expressed the belief that by such measures the disease as a cause of disablement might by degrees be entirely prevented. That is a most important deliverance.

As regards the Compensation Act in general, the Departmental Committee concluded, as pointed out by Professor Glaister, that there was no need for much revision of procedure, though employers should be compelled to give publicity within their works to the provisions of the Act, for the guidance of their workers in claiming compensation, and an accident book should be kept in every workshop. It considered also that the registrar should examine the factory surgeon's certificates in cases of appeal, and should return them to him for correction of any irregularities. This simple procedure, Dr. Glaister holds, would appreciably facilitate administration. The Committee further advised that every report by a medical referee should state specifically whether the workman was suffering from the scheduled disease, whether he was thereby disabled, and whether the certifying surgeon had correctly stated the date of disablement. Another recommendation was that additional facilities should be provided to render resort to the services of the referee easier. To meet the financial risks of smaller employers and of householders compulsory insurance is recommended. The Committee was favourably inclined towards extension of the scheme of the National Insurance Act to meet the needs of injured workmen, but this, as Dr. Glaister remarks, opens up a wide question.

The whole address is so packed with information which every practitioner ought to possess that the report of it in to-day's issue should be preserved for reference.

ECONOMY AND INFORMATION.

IN our issue of June 24th we referred to the great increase in the price of Stationery Office publications, and pointed out the dangers, from the point of view of the medical profession, of the course upon which the Treasury had entered. We are very glad to see that Dr. Fremantle has taken up this matter in the House of Commons. On July 3rd he asked the Secretary to the Treasury to "state the reasons for the increase in price of the Annual Report of the Registrar-General for Scotland from 5s. to £2 17s. 6d.; if, in fixing the latter price, regard has been had to the restricted circulation that will result and the lessened use of the findings

of the Registrar-General's Department by local authorities and by the public at large; whether it is proposed to increase similarly the cost of the annual report of the Registrar-General for England and Wales and other official publications; and whether, before fixing prices, he will consult the Ministers concerned in regard to the value of the publications to the public welfare." Sir John Baird promised to make inquiries and subsequently wrote to Dr. Fremantle in the following terms:

Dear Fremantle,

As promised in my reply to your question on 3rd instant I have looked into the pricing of the Scottish and also of the English Registrar-General's Reports.

The reason for the large increase in the price of this and other Government publications is that the Government has decided that in view of the present financial condition of the country it would no longer be justified in selling official publications at prices far below cost. In calculating this nothing is included for the cost of preparation, and all copies used for official purposes are treated as sold at the published price. It is not as if the low prices hitherto charged had led to wide circulation. You will no doubt be surprised to learn that the sales of the previous report of the Registrar-General for Scotland (priced at 5s.) only amounted to 74 copies, the majority of the purchasers no doubt being local authorities, in whose interests very largely the report is published.

I must say, however, that the price of 57s. 6d. seems to me too high, and as I find that it is still not too late to make a reduction I am having it altered to 30s., and I will have careful note made of the sales to enable me to judge whether it would be to the interests of the Exchequer to fix it still lower next year. I may say, however, that our experience hitherto with publications of this character is that their restricted circulation is not very responsive to variations in price.

The real question to my mind is whether we are justified, in view of the very small demand for this work, in publishing all the elaborate tabular matter in the report, and I am pursuing this aspect of the matter. The corresponding English report, which has a considerably larger sale, is being issued at 20s.

As regards the last part of your question I would add that we are frequently in consultation with Government departments as to the prices of their publications.

Yours sincerely,

July 17th. JOHN BAIRD.

Sir John Baird's interesting letter shows that Dr. Fremantle has already secured a useful concession, and we hope that he will pursue the subject, for in our opinion the Secretary to the Treasury still does not fully realize the gravity of the issue. The price of the last report of the Registrar-General for England and Wales was 7s.; that of the report just issued is 20s., or nearly three times as much. It appears to us that the very small circulation of the Scottish Report at its old price, although not, we are afraid, very creditable to the Scottish public, is no argument for an increase, but proof that even the old price was too high. The intellectual level of discussion of public health problems must continue to be low so long as the general public are ill informed respecting the essential facts; they cannot be well informed unless they are familiar with the principal contents of the reports of the Registrars-General of Great Britain. Sir John Baird's expedient for meeting the difficulty by reducing the bulk of the reports is, we think, a dangerous one. There is perhaps a case in favour of issuing a new document summarizing the most essential facts and to be sold at a very low price, but this should be in addition to the present reports; the latter ought to continue to be within the purchasing power of both the new and the old poor. We are extremely suspicious of inquiries pursued by Treasury officials and other laymen into the value of "elaborate tabular matter." Such persons are not competent judges. It is for medical statisticians, including in that term not only the medical staff of the Ministry of Health but all medical officers of health, and for representatives of the medical profession as a whole to decide what is of value. We must say frankly that the creation of any suspicion that the whole of the data of mortality were no longer made available for the ordinary citizen would be, in our opinion, a great evil, and would play into the hands of anti-medical propagandists. We regard these blue books as important instruments of public education. They are instruments of which we should be proud: our official vital statistics are the best in the world. The medical profession regrets that they have not hitherto been utilized so fully as they might be by the general public, but cannot agree that this neglect ought to be accepted as a reason for still further restricting the unofficial circulation of the means of acquiring knowledge. A truer economy would be to seek means of increasing the demand. Were the publicity methods of the Stationery Office modernized, the reports of the Registrars-General would no doubt not become "best sellers," but they might find many more purchasers than they have at present.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

THE annual meeting of the Medico-Psychological Association of Great Britain and Ireland was held on July 19th, 20th, and 21st in Edinburgh, on the first and third days at the Royal College of Physicians, and on the second day in the physiology lecture room of the University. Professor G. M. Robertson of Edinburgh was elected president for the year 1922–23; a full summary of his presidential address was given in the JOURNAL of July 22nd (p. 134). At the opening meeting Dr. C. Hubert Bond, who was in the chair, referring to the committee which had been appointed in connexion with the True case, said that the Medico-Psychological Association some years ago had come to the conclusion that it was impossible for it to offer advice of utility with regard to such cases; circumstances had changed since then, however, and it hoped now to be able to offer something, if it were desired, to that important Committee. It had therefore been decided by the association to form a committee and to discuss and classify the medical aspects of the plea of insanity in criminal cases. Dr. A. Ninian Bruce read a paper on "The outside and the inside treatment of early cases of mental disorder." Professor G. M. Robertson presided at the morning and afternoon sessions of the second day, when in the morning Sir Edward Sharpey Schafer gave an address on "The influence of the endocrine glands on the nervous system," Sir Frederick W. Mott read a paper on "The investigation of the relationship of the reproductive and endocrine glands to mental diseases," and Dr. J. J. Graham Brown gave a paper on "Observations relating to the sympathetic and parasympathetic systems." At the afternoon session Dr. David Orr gave an address on "The inter-reaction of the endocrine, sympathetic, and central nervous systems in organismal toxaemia, with special reference to emotional disturbance"; papers were read by Professor J. C. Meakins on "The influence of chemical substances of the endocrine glands and nervous system," and by Dr. W. H. B. Stoddart on "The mental factor of some endocrinopathies." On the concluding day of the meeting Dr. Chalmers Watson gave an address on "The treatment of intestinal toxaemia," which was followed by an interesting discussion, in which Sir Frederick Mott, Dr. H. Crichton Miller, and others took part.

SIR NORMAN MOORE.

AT the comitia of the Royal College of Physicians of London held on July 20th the President, Sir Humphry Rolleston, announced that Lady Moore had offered to present to the College the portrait of Sir Norman Moore by Walter W. Russell, A.R.A., which has been on view this summer at the Royal Academy. The offer was gratefully accepted. This portrait shows Sir Norman Moore seated, and wearing the robe of black velvet and gold lace of the President of the College—the office held by him for four years, 1918 to 1922. An earlier portrait, by R. G. Eves, which was exhibited at the Academy some years ago, is reproduced as a photogravure frontispiece to the first volume of his great work, *The History of St. Bartholomew's Hospital;* for that he wore the black bonnet and scarlet gown of a Doctor of Medicine of the University of Cambridge. It is fitting that the portrait that will hang on the walls of the Royal College of Physicians should depict Sir Norman Moore in the Presidential robe. He has been a Fellow for forty-five years, and none of his illustrious predecessors have served the College with greater distinction, or with a higher regard for its honour. This picture will remind future generations that the learned physician was a living force in the intellectual world of medicine during the first quarter of the twentieth century.

SIR MALCOLM MORRIS'S GOLDEN WEDDING.

A LUNCHEON to celebrate the golden wedding of Sir Malcolm Morris and Lady Morris was held on July 18th at the Trocadero Restaurant, London. Sir George Newman presided, and was supported by Sir James Michelli, Dr. J. J. Pringle, Dr. J. J. Perkins, Mr. J. Grant Ramsay, and Dr. C. M. Wilson. The Chairman, after reading letters of regret for their absence from the Archbishop of Canterbury and Sir StClair Thomson, presented to the guests an inscribed George III silver tea service, together with a volume containing the signatures of the subscribers. The health of Sir Malcolm and Lady Morris was proposed by Dr. Pringle, who spoke of his unsullied friendship of forty years, and of the prominence of Sir Malcolm in the British dermatological world. Sir Malcolm Morris, who spoke with great emotion, referred to the early struggles of his life, when he was the youngest of fifteen children, and he told of his resolution at the age of 17 to enter the medical profession. Turning to Sir James Crichton-Browne, who was present at the luncheon, Sir Malcolm Morris told of how he had made his acquaintance in connexion with work at the mental hospital at Wakefield: "I got from him a bacillus of energy; that bacillus is still active, and its cultivation is entirely due to the co-operation of Lady Morris." Lady Morris also briefly responded, and a vote of thanks to the Chairman, proposed by Sir Thomas Horder, brought the very happy proceedings to a close. Amongst those present were the Columbian Minister, Lord and Lady Dawson, Lord Gorrell, Sir W. H. and Lady Willcox, Sir John and Lady McFadyean, Sir Henry and Lady Gauvain, Sir Arthur and Lady Conan Doyle, Sir Anderson and Lady Critchett, Sir Arthur Newsholme, Sir Squire Sprigge, Sir J. Thomson Walker, Dr. Mary Scharlieb, Mr. E. Rock Carling, and Professor C. C. Choyce, and several members of Sir Malcolm Morris's family.

MEDICAL LITERATURE FOR RUSSIAN DOCTORS.

IN a note on the Fund for Russian Doctors published in our columns of July 15th it was said that a recent message from Moscow stated that Russian doctors were in great need of modern medical literature, as their supply had been cut off for several years. British doctors who could spare files of medical journals for the past three years were invited to turn them over to the American Relief Administration for distribution. We are informed that this notification went further than was intended, and that the American Relief Administration in London finds itself unable to deal with the very numerous and generous offers it has received from medical men in this country. It proposes to limit its efforts in this respect to obtaining week by week spare copies of English medical journals, which it could then dispatch at short intervals by its couriers to Russia. The arrangements for this are not yet completed, and it is hoped to make a further announcement shortly. The total amount received by the British Medical Association for the Russian Doctors' Relief Fund down to July 24th was £1,503 0s. 11d.

THE REGISTRAR-GENERAL'S REPORT FOR 1920.

THE eighty-third annual report of the Registrar-General of Births, Deaths and Marriages in England and Wales has been published as a blue book of 531 pages.* The figures in each respect are remarkable. The marriage rate was 20.2 per 1,000, which is the highest recorded, being 0.5 above that of the preceding year, and 4.8 above the average of the last ten years before the war. The birth rate was 25.5 per 1,000, or 7.0 above that of the preceding year, which was the highest since 1909. The death rate was 12.4 per 1,000, or 1.3 below that of the preceding year, and is the lowest recorded. The number of deaths, 466,130, was the smallest for any year since 1862, when the population was little more than half that of 1920. As the number of births was 957,782, the natural increase was 491,652, as compared with 188,235 in the previous year, and 50,800 in the year before that. The amount of this excess, the largest in the history of the country, was due to the temporary rebound of the birth rate following demobilization, in conjunction with the exceptionally low death rate. It is expected that the latter factor will be repeated—the provisional figure for 1921 is even lower. A repetition of the 1920 birth rate is deemed unlikely. On ratio of population, however, the excess does not represent an absolute record; the birth rate for the whole quinquennium 1876–80 (when it reached its maximum) was 14.5, whereas in 1920 the excess was only 13.1 per 1,000 of population. The proportion of males to females born was 1,052 per 1,000, and so it continued much above pre-war experience. Dr. Stevenson, the superintendent of statistics, is able to point to another big step forward shown in the figures relating to infant mortality. The rate fell in 1920 to 80 deaths per 1,000 births, against 89 in 1919, which was the lowest previous corresponding rate. It is pointed out, however, that this improvement is partly due to the large increase of the birth rate during the year. A method adopted this year to correct such fallacy raises the rate from 80 to 85, which is, however, highly encouraging as an improvement on the lowest corresponding rate for any previous year (91 in 1916 and 1917). Under this method of tracing the mortality quarter by quarter it is found that the decline chiefly occurred during the second half of the calendar year. The year 1920 shows a rise in deaths from most forms of epidemic disease as compared with the rate in 1919, which was unprecedentedly low. The increase in respect of measles and whooping-cough is considerable, but slight in other cases; the only decrease is from enteric fever, which for the sixth year in succession was the lowest ever recorded in the country. In regard to tuberculosis it is satisfactory to learn not only that the death rate was considerably lower than in any previous year, owing to the circumstances of war and the pandemic of influenza, but that the ground lost in progressive reduction has now been substantially regained. The opinion is given that this advance will probably be found to have been kept up in 1921, but not materially improved. The increase in the birth rate is again mentioned to explain a slight increase in the crude mortality from syphilis, to which the deaths of infants normally contribute in a preponderating degree. But when the increase is discounted by standardization, the mortality attributable to this cause is found to have declined. The more general death rate under this heading shows a considerable fall since 1917. In regard to cancer mortality, some further increase is reckoned to have occurred in 1920. This statement is applied more to males than females, whose rate has hardly advanced during the last eight or ten years. The deaths allocated to encephalitis number 861, as against 663 in the year 1919, 366 in 1918, and 329 in 1913. Included in the table are 471 deaths ascribed in 1920 to encephalitis lethargica, as against 290 in 1919, 4 in 1918, and none in 1913. The total number of deaths under or connected with the administration of anaesthetics (366) is considerably higher than in any of the nine preceding years, for which alone the complete figures are available. The number is said to have been fairly constant, having varied only between 261 in 1915 and 306 in 1916. The chief increase in any one age group is in infancy, 28 such deaths having been reported in 1920 at ages under one year as against 11 in 1919. Of the 26 male infants, 11 were being operated on for hernia or intestinal obstruction, 8 for phimosis, and 3 for cleft palate. It is pointed out that the assumption must not be made that in all the cases death was due to the anaesthetic, though in many, owing to the nature of the condition occasioning the administration, there may be strong presumption. With the aid of the preliminary report of the census issued in August, 1921, the population in the middle of 1920, upon which figures are based, was reckoned to comprise 17,866,000 males and 19,658,000 females. A very large number of tables are appended, and one of these shows that the death rate of both sexes was very low in old age as well as at other periods of life. As usual, the volume includes classified statistics of various counties.

*To be purchased through any bookseller or directly through H.M. Stationery Office. (£1 net.)

DYSMENORRHOEA AS AN INDUSTRIAL PROBLEM.

IN view of the large and increasing employment of women in industry, the industrial aspect of dysmenorrhoea, perhaps the commonest of all female ailments, is a matter which merits serious consideration. The *Journal of Industrial Hygiene* for June, 1922, contains a preliminary note on dysmenorrhoea as an industrial problem, by Dr. Samuel R. Meaker of Boston, U.S.A. It is highly suggestive and indicates the direction in which further investigation for the alleviation of the condition is necessary. Dr. Meaker investigated the industrial incidence of dysmenorrhoea with a view to determining its effects upon industry and the best methods for dealing with it. Industrial crippling from dysmenorrhoea occurred in three ways: (1) The girl remained at work, but with lowered general efficiency; (2) the girl was incapacitated for a short period of the day; (3) the girl was absent for a full day or longer. The first group does not entail any considerable industrial loss, while in the second group rather over 10 per cent. of the girls were found to seek relief at the rest room or hospital during any given month. Half of these girls were able to return to work after a hot drink and a rest of from ten to fifteen minutes, so that the amount of time lost was negligible; somewhat less than one half of them lay down for periods averaging about two hours; about one-eleventh of this group were sent home for the remainder of the day, the industrial loss in each such case being one day. The third group—those absent for a full day or longer—was found to be chiefly responsible for industrial loss; it was estimated to constitute more than 1 per cent. of the total time of the employees. Dr. Meaker considered that much could be effected by providing proper medical care for those seeking relief at work (Group 2) and by education among those who had to stay away from work (Group 3). Women, he says, are amazingly backward about seeking medical relief for their menstrual difficulties; the subject could, he thinks, be brought to the notice of employees at the time of their engagement, and upon reporting at hospital; in this way nearly four-fifths of the female staff would be educated upon the problem during any one year. It was believed that once the industrial aspects of dysmenorrhoea and the possibility of successfully handling the problem were realized by employers their co operation in establishing facilities for care and treatment would be assured. The greater part of the suffering from dysmenorrhoea could be prevented by simple measures, and in most cases without pelvic examination.

RADIOLOGY OF THE CHEST IN CHILDREN.

IN May, 1920, a small committee, consisting of three clinicians and three radiologists, was appointed by the National Tuberculosis Association of the United States to report on the *x*-ray and clinical findings in the chests of normal children from 6 to 10 years of age. The committee was asked to define a standard in order to facilitate by contrast the interpretation of the abnormal signs characteristic of active disease, particularly tuberculosis. Working in pairs at three different universities the members of the committee examined over 500 children of all grades of society and representative of both urban and rural communities; they were free from symptoms of disease, and of approximately normal height and weight for their respective ages. After nearly two years' work a full meeting of the committee was held, the results of each pair were correlated, and the report now issued drawn up in accordance with the unanimous expression of opinion of all those engaged in the research. From the clinical standpoint great stress is laid on the variable nature of the percussion note in children. In some cases it is fuller, more tympanitic, of higher pitch, and of greater resilience than that noted in adults, while in others it is indistinguishable in quality from that elicited over the lungs of fully grown individuals. Similarly with the breath sounds; though generally possessing a harsh sharp character with prolonged expiration they by no means infrequently display the usual vesicular murmur of adult life. In more than 50 per cent. of the children in which this latter type of breathing was heard examination with the *x* ray gave findings similar to those obtained by a study of normal adult chests. So close, in fact, was the agreement between the clinician and the radiologist that it was found possible to designate the chest of normal children as of "puerile" or of "adult" type. These variations and those of the percussion note are more generally found in children with a history of previous infection of the respiratory tract. It was noticed that after such infections as measles and pertussis areas of increased density radiating from the hilum to the base occurred with great frequency; these were observed even in uncomplicated cases, indicating that a general inflammatory process of the whole respiratory passages may be a common feature of these two diseases. That such shadows are evidence of healed processes and not of active lesions is indicated by the fact that they may remain unchanged and without the development of clinical symptoms for three to five years at least. D'Espine's sign as denoting the presence of enlarged tracheo-bronchial glands was found to be of little value, while Eustace Smith's sign is so generally elicited in normal children as to deprive it of diagnostic importance. Among the more important conclusions reached by the committee three may be stated. The first is that the normal chest of the child is, from the radiological standpoint, subject to such wide variations within normal limits as to be beyond the possibility of exact description. The second is that the conglomerate shadow commonly called the hilum shadow, when found lying entirely within the inner third or zone of the lung area, can be disregarded (or regarded as normal), except where it is made up of a solid mass of homogeneous shadow giving undoubted evidence that it represents a growth or mediastinal pleurisy. The third conclusion is that calcified nodes at the root of the lung, without evidence of lung disease, are of no significance except as a possible evidence of some healed inflammatory condition, possibly but not necessarily tuberculous. They are a common finding in normal chests. It is stated, further, that persistence of the bronchial shadows to the peripheral zone of the lung may be due to a variety of conditions, past or present, of an inflammatory nature or otherwise, but is not necessarily indicative of tuberculosis. In congratulating the National Tuberculosis Association on the thoroughness of the work conducted under its auspices, we may remark that once again we meet with an example of the extraordinary value of the co-operation of two classes of workers proceeding along different lines in elucidating problems which, regarded from one or other side alone, remain obscure.

INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE.

THE International Congress of the History of Medicine held in London last week was a great success. It came to an end on Friday, July 21st, when a farewell banquet was held at the Hotel Cecil. We published last week (p. 145) an account of the opening of the proceedings, but owing to the pressure of matter from the Annual Meeting of the Association at Glasgow are compelled to defer publication of the remainder of our report until next week.

BEER AND LEAD POISONING.

INFORMATION has reached us of several cases of lead poisoning among men which it is considered are due to the drinking of beer. A modern development of the equipment of beerhouses is the provision of stoneware or earthenware troughs along which the beer flows or may remain for some time. It is suggested that the lead glaze on the troughs is so acted upon by the beer that a sufficient amount of lead is imbibed to result in definite symptoms of lead poisoning.

OWING to the pressure of matter from the Annual Meeting in Glasgow the issue of the EPITOME is suspended for this week.

ANNUAL MEETING NOTES.

THE Annual Representative Meeting of the British Medical Association opened in Glasgow on July 21st with Dr. R. Wallace Henry in the chair. During the morning Sir William Macewen paid a visit to the meeting and welcomed the Representatives to the City of Glasgow on behalf of the Executive of the Reception Committee. A little later Sir Donald MacAlister attended and welcomed the British Medical Association to Glasgow on behalf of the University, of which he is Vice-Chancellor and Principal. Reports of the proceedings on that day and on Saturday, July 22nd, and of part of the proceedings on Monday, July 24th, are published in the SUPPLEMENT this week, and to them members are referred for a detailed account of what happened. We here refer only to a few outstanding matters.

The British Medical Association, being conterminous with the British Empire, is experiencing certain difficulties, similar to those encountered by the British Government, in the adjustment of its constitution to the fact that the Dominions have grown to man's estate. Last year one of the most anxious matters with which the Representative Meeting had to deal was the nature of the relations which might best be maintained with the Branches in the great Commonwealth. With the assistance of Dr. Todd, who had come from Australia to express the view of the Branches there, a solution was then found, and the Representative Meeting this year opened with the reading by the Chairman of a cable message conveying the best wishes of the Federated Australian Committee for a successful Representative Meeting. Early in the meeting Dr. J. F. Wilkinson, the Representative of the Victorian Branch, made a short speech, which was listened to with great pleasure by the Representative Meeting. He expressed the thanks of the Federal Committee and the members of the Australian Branches generally for the very friendly way in which they had been met in this matter, which they regarded as one of very great importance. The proposals made would enable them to work out their medical affairs in the way which seemed to them best, but without any break from the parent Association, which was for them a most vital factor. They desired that nothing should be done which would in any way weaken the link that bound them to the parent Association. The Representative Meeting then passed to a consideration of the relation of the British Medical Association to the organization of the medical profession in South Africa, a matter which presented some resemblances, but also some serious points of difference from the problem that arose in Australia. The Chairman of the Organization Committee, Dr. Morton Mackenzie, brought forward a resolution, which, with certain amendments, was eventually adopted; but before this stage was reached the meeting heard an interesting speech from Dr. Barnard Fuller, the Representative of the Cape of Good Hope Western Provinces Branch. He said that though Cape Colony was content with existing arrangements, there was in South Africa, not only among medical men, but among the general population, a large section to whom anything with the prefix "British" was distasteful. The difficulties were great, and he had found it far from easy to decide what would be the wisest course to take. Those who were most anxious to keep in intimate touch with the British Medical Association realized that in South Africa it was necessary to go warily both in general and in medical politics. He looked forward to a new association which would bring all South African medical men within its discipline and would be linked up with the British Medical Association. The resolution adopted by the Representative Body on July 21st reiterated the opinion it had previously expressed in favour of federation of any purely medical body or bodies representing substantially an ex-branch or group of ex branches of the British Medical Association outside Great Britain which desired it, and instructed the Council to continue the discussion of the scheme proposed to the South African Committee or any alternative scheme suggested by it.

The first part of the session of Friday afternoon was occupied by an animated discussion on the question of professional secrecy. It may be remembered that the Annual Representative Meeting last year expressed the view that the Association should use all its power to support a member of the British Medical Association who refuses to divulge without the patient's consent information obtained in the course of his professional duties, except where it is already provided by Act of Parliament that he must do so. This resolution was referred to the Council with an instruction that it should be submitted to the Representative Meeting this year with a view to considering the propriety of its becoming the policy of the Association. When the position came to be looked into by the Council various difficulties were encountered, and in its annual report the Council recommended that the minute should be rescinded and suggested an alternative declaration. The matter was accordingly brought before the Representative Meeting this year by the Chairman of the Central Ethical Committee, Dr. R. Langdon-Down, who set out fully the reasons which had induced the Council to come to the conclusion that it was undesirable to make the resolution of last year a declaration of the policy of the Association. On behalf of the Council he proposed an alternative form. This was accepted with only seven dissentients. Afterwards an extension put forward on behalf of the Kensington Division by Dr. Buttar was also accepted, and the resolution as finally adopted set out that since in the opinion of the Representative Meeting it is an essential principle of medical conduct that information obtained in connexion with the treatment of patients should not be divulged without the consent of the patient concerned, the Annual Representative Meeting declared its opinion to be that the proper preservation of professional secrecy necessitates a measure of special consideration being recognized for medical witnesses in courts of law, above and beyond what is accorded to the ordinary witness.

Later the meeting turned to the consideration of the sections of the Annual Report of Council dealing with National Health Insurance, and the recommendations of the Council were submitted by Dr. Brackenbury, Chairman of the Insurance Acts Committee. Two important decisions were reached: the first, which was carried unanimously, affirmed the Representative Body's insistence upon the continuance of the system of negotiation which has prevailed since the coming into force of the National Health Insurance system—namely, direct negotiations between the Government and the profession without the intervention of any third party—but at the same time expressing readiness to welcome the co-operation of all those interested in the development of the best possible medical service for insured persons. The second resolution, which was carried on a roll call by 81 to 21, stated that in the opinion of the Representative Body the measure of success which has attended the experiment of providing medical benefit under the National Insurance Acts has been sufficient to justify the profession in uniting to ensure the continuance and improvement of an insurance system. It will be remembered that the Conference of Panel Committees last October unanimously passed a resolution in similar terms.

Monday morning was occupied by the Representative Meeting in the consideration of the sections of the Report of Council relating to the finances of the Association and to the work of the Medico-Political Committee. It has been found necessary to postpone the report in the SUPPLEMENT of the proceedings on these matters in order to make room for the conclusion of the report of the discussion of the hospital policy of the Association, which occupied the greater part of the afternoon session on Monday.

The subject which occupied more of the time of the Representative Meeting than any other was the hospital policy of the Association. It is not surprising that the Association has great difficulty in exactly defining its position. The fact seems to be that the practice of medicine is going through

a period of change which may be called, without exaggeration, revolutionary. It is not merely that the financial distress of the hospitals has become more acute than before, nor only that the insurance scheme introduced some ten years ago is lopsided, since it does not make provision for in-patient treatment in hospitals; but it is also that the increasing complexity of medicine has compelled the adoption of what is called the "group system" of treatment in all classes of practice. It had been beginning to develop rapidly in large hospitals before the war, and the movement was greatly accelerated by the war, when the medical officer in charge of a patient could obtain with ease the assistance of the combined investigations by physician, surgeon, radiologist, chemist, and bacteriologist. At present the only way in which these combined opinions can be obtained is, in the case of a patient who is not rich, to go to a hospital; while a rich patient must either go the round of the specialists or enter some private institution which will undertake a complete examination for a lump fee; and of such institutions there are not many. We will not here attempt to give a summary of the long and rather complicated discussion, the report of which in the SUPPLEMENT should be read by every member of the profession. It will be noted that the Association once more recorded its belief that the voluntary method of administration of the voluntary hospitals of the country is to the advantage of the public, medical science, and the medical profession, and should be maintained; and further, that the essence of the voluntary system is the independent and voluntary management, which is not necessarily related to conditions of service of the medical staff. It was also affirmed that the voluntary hospitals have grown up on a general understanding between the subscribers, the board of management, and the members of the honorary medical staff, that both funds and services were placed gratuitously at the disposal of those unable to pay for adequate medical treatment, but that the understanding for gratuitous service was mutual and reciprocal. This being so the general tendency now existing for the exaction of payment, however small, from the patient, necessarily modified the original understanding and fundamentally altered the basis of the relation between the honorary medical staff and the subscribers. The proposal for the formation of staff funds gave rise to much discussion and disclosed that there were two opposed and, as it would appear, fairly evenly balanced opinions in the meeting. An amendment by Dr. Brackenbury was carried but was not put as a substantive motion, the suggestion of the Chairman of the Hospitals Committee that the point at issue should be referred back to the Council being accepted. Dr. Brackenbury's amendment was to the effect that where payments of patients were made by rate aid or State aid, and where in other cases payments were of an amount exceeding the cost of hospital maintenance and accommodation, such charges should be considered to include payments towards maintenance and treatment and a percentage of all such payments passed into a fund, which should be at the disposal of the honorary medical staff.

It is interesting to record that a conference on the subject has recently been held between representatives of the medical staffs of ten of the London teaching hospitals; the result of this conference has just been announced, and it appears that it arrived at conclusions similar to those so far reached by the British Medical Association. The hospitals represented were St. Bartholomew's, St. George's, Guy's, King's College, St. Mary's, the Middlesex, St. Thomas's, University College, the Westminster, and the Royal Free. The first resolution, adopted without a dissentient, was: "That under present conditions in the case of patients who contribute towards, but pay not more than, the whole cost of their maintenance in a voluntary hospital, it is undesirable that any portion of such contribution should be allocated to a staff fund." The second resolution, from which Guy's, Middlesex, and University College dissented, was: "That when the State, a municipal or other public body pays towards the accommodation, maintenance, and treatment of a patient or group of patients in a voluntary hospital, a percentage of such moneys should be allocated to a staff fund." A third resolution, from which Guy's dissented, was also adopted, to the following effect: "That when a special clinic is held by a member of a hospital staff for the treatment of patients sent by the State, a municipal or other public body, the member of the staff taking such a clinic should be adequately paid."

The business of the Annual Representative Meeting was brought to a satisfactory conclusion soon after 3 p.m. on Tuesday, July 25th. That no curtailment of the time allowed to speakers had been found necessary was matter for congratulation in view of the complex and contentious nature of much of the agenda. On Tuesday, indeed, from the presentation of the Report under "Science," by Sir Clifford Allbutt, to the votes of thanks with which the meeting closed, Representatives had little to do beyond recording approval of the year's progress under the several heads remaining. That approval was especially wanted in connexion with the work of the Dominions and the Scottish Committees. One point only provoked discussion, and on that point, the compulsory retirement of Senior Surgeon Commanders of the Navy Medical Service without compensation, the meeting, whilst expressing cordial approval of past action, left the Council with no uncertain mandate for the future.

Great efforts have been made this year to ensure the success of the Annual Exhibition of instruments, apparatus, drugs, food, books, and medical accessories, which has long been a feature of the annual meetings of the British Medical Association. The exhibits at Glasgow have been arranged in a portion of the large Kelvin Hall, which adjoins the grounds of the University; a better building for this purpose can scarcely be imagined. The firms exhibiting number nearly eighty, and they have succeeded in bringing together a great deal of material of much practical interest to members of the medical profession. An account of the exhibits will appear in subsequent issues, but we may note here that the opening ceremony, presided over by the President, Sir William Macewen, on Tuesday morning, July 25th, was attended by the Bailie Allan, Sir Clifford Allbutt, the officers of the Association, and a very large number of Representatives, who were impressed with the general arrangement of the stalls and the good taste shown by the firms in displaying their goods.

The Municipal Departments of the Corporation of Glasgow arranged elsewhere an interesting exhibition. It grew out of a desire expressed by Sir William Macewen that the Public Health Department of Glasgow should illustrate the several directions in which municipal effort tends to further the health of the community. The suggestion was enthusiastically taken up by the Health Committee in the first instance, and thereafter by the other committees whose work runs on parallel lines, so that altogether twenty-two sections of Corporation activity were illustrated. We propose to publish a detailed account of this exhibition next week.

On the afternoon and evening of Sunday, July 23rd, a large number of Representatives and their wives and families had a delightful sail on the River and Firth of Clyde in the ss. *Skirmisher*. The afternoon was fine and the trip was greatly appreciated. Starting from Yorkhill Quay, the steamer passed the great shipyards of Clydebank. Next, the visitors saw Dumbarton Castle and had a peep at Ben Lomond in the distance; they then sailed past Port Glasgow and Greenock, and traversed Loch Long and Loch Goil, in the midst of the beautiful West Highland scenery. Nearing the head of Loch Long, the steamer turned and proceeded seaward as far as Hunter's Quay, returning thence up the Clyde to Glasgow. Yorkhill Quay was reached at nine o'clock, after seven hours' keen enjoyment. Tea, supper, and music were provided on board, and the general arrangements were perfect.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Milk and Dairies (Amendment) Bill.

THE Second Reading of the Milk and Dairies (Amendment) Bill, which had come down from the Lords, was moved in the Commons on July 19th by Sir A. Mond. The measure will further postpone the operation of the Act of 1915, which would otherwise come into force next September. The application of the original Act was delayed on account of the war, and the Minister said that one reason why it was not to be applied now was that it would require a large staff and place heavy duties upon county councils, involving a charge of something like £800,000 a year, rising to a million sterling, for administration. Moreover, it would put expenses on landlords and farmers which, in their present financial position, they were not ready to carry out. Farmers could not be compelled to produce milk, and if conditions were too onerous would not do so. The present bill was intended to encourage the supply of good milk, the policy being to endeavour to secure it by a form of persuasion rather than by compulsion. The best form of persuasion lay with the consumer. If he insisted on having a better standard of article he would get it. Practical experience shows this to be the case. Local authorities already possessed considerable powers for securing sanitary conditions in production, storage, and distribution of milk. The Milk and Dairies Order of 1885 gave very large powers, and if they were more generally enforced much more would have been done than was the case at present in the direction of obtaining clean milk. The orders of 1885–86 and 1899 provided for the registration of all dairies and milk shops, the lighting, ventilation, cleansing, drainage, and water supply of premises, and for precautions against infection or contamination. Section 6 of the Sale of Food and Drugs Act, 1885, made it an offence to sell, to the prejudice of a consumer, an article of food which was not of the nature, substance, and quality as demanded. Though the order of 1885 required local authorities to keep registers, it gave no power to revoke registration in any case outside London. It was proposed in the present bill to give such power, which would be extremely useful for enabling authorities to keep these places under better supervision and control. To guard against arbitrary revocations various provisions for reference to the courts by way of appeal were made. A main feature of the present bill was to encourage grading up. At present the Ministry had thirty-five grading stations in which a very strict inspection was made with tuberculin tests in regard to the cattle used. The number of licences for the certified grade and Grade A had increased from 17 in March, 1920, to 57 in July, 1922. But the milk so standardized was rather a luxury article than one useful to the mass of the people. He proposed to try and provide a system under conditions by which any reasonably careful farmer should be able to supply this quality of milk without any great additional cost. The aim was to set up, as a standard article, milk which for health purposes would be satisfactory. The grading would be done by orders to be drawn up when the bill was passed and, of course, submitted to the House. He wanted to get milk which was free from tuberculosis bacteria. It was not the case that every cow which reacted to the test gave tuberculous milk. The Medical Research Council, at his instigation, was carrying on an elaborate investigation into the whole question of the value of tests. He proposed to go on the lines of testing the milk rather than the cow. He was laying down a standard of a bacteriological kind in the milk test rather than dealing with the animal. In Clause 4 provisions were introduced to prohibit the addition of colouring matter or water. This was a continuation of a food control order of 1921 which would lapse on September 1st if not embodied in the bill. Under the clause it was made an offence to sell, or offer for sale, adulterated milk. Under Clause 5 it was made an offence for any persons knowingly to sell milk from a cow with tuberculosis of the udder. The penalties were severe. This continues Article 15 of an order of 1885 as amended in 1889. Clause 8 gave the Minister power to make regulations to prevent danger to health from imported milk. This was not a question of condensed but of fresh milk. Condensed fell under another category. The question of the standard of condensed milk was one more of food value than of liability to spread tuberculosis. Regulations not yet settled might lay down some standard, but he would not, at the moment, like to say what they should be. Under Clause 11 powers might be exercised by a county council where the district council failed to exercise them. The Minister of Health might, after inquiry, determine that all or any such powers should be transferred to the county council, either for a definite period or as he might direct. Up to the present the enforcement of orders had been very unequal. Not only would the orders have to be laid before Parliament, but consultations would have to take place between himself and the Minister of Agriculture as to their framing.

Mr. Acland, who, as chairman of the Agricultural Organizations Society, some months ago called a conference which broadly favoured the lines of this bill, gave the measure support but reserved the right of criticism in regard to certain matters. Referring to Clause 5, designed to prevent the sale of tuberculous milk, Mr. Acland said he had seen it stated as the opinion of Dr. Raw that so long as children could get enough milk a certain amount of cow tuberculosis infection in that milk was not harmful, but might be beneficial, because it tended to immunize the children who took it from human tuberculosis. If that were so, it revolutionized very many previous ideas, and the House ought not to hurry too quickly in making regulations.

Sir Watson Cheyne remarked that milk might be a carrier of disease in two ways. It might carry typhoid, not through the cow having typhoid fever, but because the water used to dilute the milk might have come from an infected well or because the milkman himself has typhoid. So with diphtheria or scarlet fever. In the case of tuberculosis, however, the milk carried the germs of an extremely serious disease from a cow infected with it, and no pains should be spared to prevent that happening. The difficulty in getting agreement with agriculturists or dairy people for special precautions in regard to tuberculosis was extraordinary. He thought it was due to the want of appreciation of the real danger. He was of opinion that the word "knowingly," in the clause which laid down that no person should knowingly sell the milk of a cow suffering from tuberculosis of the udder, left a loophole for evasion, because anyone could say he did not knowingly sell such milk. Ignorance was not allowed to be an excuse in other matters, as, for instance, when a person was taken ill from ptomaine poisoning from food eaten in a restaurant. He was afraid also that, although there was not much danger in the milk of a cow even if it suffered from a general tuberculosis disease unless the udder itself was affected, by putting these words into the bill the farmer would be misled into concentrating attention on the one question, and forget to see whether the milk was affected. Diagnosis for tuberculosis disease by external handling of the udder was almost impossible, and plenty of expert veterinary evidence would be given of contradictory character. He thought that a conviction could not be obtained unless there was a provision in the clause against milk containing tubercle bacilli. The farmer could know quite easily whether the milk was tuberculous by having it examined microscopically. Urging the importance of getting this security Sir Watson Cheyne said that he had lately met a doctor who had practised in America in one of the States where very stringent precautions were enforced, and during several years of private practice there with visitation at the large hospitals, that gentleman said he had never once seen a case of tuberculous glands in the neck. Great Britain had fallen behind in attention to this matter. If a milkman were to sell milk containing arsenic it would be thought a terrible thing, even though done accidentally. Why should he be allowed to sell milk filled with tubercle bacilli of the most virulent description?

Mr. Myers deplored the postponement of the operation of the Milk and Dairies Act of 1915, and believed that many of its provisions could be carried through without extra expenditure. He was strongly in favour of the provision in the 1915 Act whereby authorities might combine to employ a veterinary surgeon to look after dairy cows. He also objected very much to the word "knowingly" in Clause 5. Mr. Myers further touched upon the sale of low-grade milks which come from separators, and very much regretted there was no provision to enable authorities to undertake the supply of milk.

Dr. Addison described the bill as "a milk and water bill," his view being that it was inadequate for the purpose. As soon as public opinion was instructed it would begin to make its influence felt all along the line as far as the cowshed. The Act of 1915 tried to approach the problem to some extent from that end. He ridiculed Clause 5, holding that it would be inoperative. The only part of the bill which would, he thought, be of any use was that part which provided for grading, but the rest would give the public a false sense of security.

Viscount Elveden warmly supported the bill, and after some other speeches Sir A. Mond replied. He defended Clause 5, insisting that at any rate it would put the farmer on his guard against selling milk from cows which had tuberculosis of the udder. The Minister then explained broadly what was proposed in regard to grading. Certified milk would be graded very much on the present lines. Every animal would be subjected to the tuberculin test before being admitted to the herd, and certified as a non-reactor. Every three months the herd would be examined by a veterinary surgeon, and the

milk examined for tubercle bacillus. If there was evidence of tuberculosis the animal would be withdrawn from the herd. If milk from the group showed evidence of tuberculosis, the whole group would be withdrawn until the affected animal was identified. Milk was to be bottled on the farm immediately after production and delivered to the consumer within two days of production. Bottles were to be completely sealed before delivery, and must not contain more than 30,000 bacteria per cubic centimetre or any *Bacillus coli* in a tenth of a cubic centimetre. In the case of Grade A milk the health of the herd was to be the same as with certified milk except that there would be no tuberculin tests. The milk might be pasteurized, but if so it must be so designated. It must not contain more than 200,000 bacteria per cubic centimetre. These limitations involved the use of sterilized vessels with careful regard to cleanliness, especially to ensure freedom from manurial contamination. The examination would be a test of tuberculin milk. People who ask for Grade A milk would get milk which they could trust. If they continued to call for Grade A milk other grades would not be sold. The consumer would be interested.

The bill was read a second time.

Pensions Appeals.—Sir F. Hall asked, on July 17th, whether officers and men whose cases came before a medical appeal board were now entitled to appeal from the decision of such board to another tribunal. Major Tryon said that Sir F. Hall appeared to be under a misapprehension as to the respective functions of the medical appeal board and assessment appeal tribunal. The assessment appeal tribunals, which were constituted under Section 4 of the War Pensions Act, 1921, dealt only with appeals against a decision of the Minister that the award made in a given case was final. The medical appeal board dealt with appeal against the assessments made by other medical boards of the Ministry. They decided matters of assessment only, and did not pronounce as to the finality of the awards. There would consequently be no ground of appeal directly from the medical appeal board to the appeal tribunal. When the finding of a medical board was made final by the Minister, the pensioner was so notified, and was at the same time informed fully of his right of appeal to the tribunal. Lieut.-Colonel Watts-Morgan asked whether it would be correct to say that the assessment appeal tribunal was set up as recently as five weeks ago, and that as many as a hundred cases were now waiting in South Wales, unable to get any sort of appeal or assessment? Major Tryon said these final awards were only just now beginning to be given. The tribunals were ready to receive appeals, but so far very few had been made, and he understood that they were being dealt with satisfactorily.

Insurance Patients: Drugs and Medicines.—Sir John Leigh asked, on July 19th, what, if any, precautions were taken against the supply of drugs and medicines of inferior quality to panel patients by retail chemists; and whether the Minister of Health was aware that such patients were frequently informed that they could have drugs and medicines of superior quality by paying for them? Sir A. Mond said that tests were made from time to time to ensure that prescriptions were correctly dispensed, and severe penalties had been imposed in cases where chemists had supplied drugs of a kind different from that ordered by the doctor. As regards the latter part of the question, the Minister said that if Sir John Leigh would give the particulars of any cases in which such statements had been made, whether by practitioners or chemists, inquiry would be made with a view to disciplinary action if the facts could be established.

A Coroner's Strictures.—Mr. Rhys Davies asked, on July 20th, whether the attention of the Minister of Health had been called to the strictures passed by the West Essex coroner on a doctor who, after being twice requested to do so, declined to attend a patient and when he arrived at the man's home found the patient on the point of death, and whether the doctor or the man was on the panel. Major Barnston (for Sir Alfred Mond) said the Minister was informed that at the time of the occurrence the patient was not entitled to medical benefit nor had he ever been on the list of the doctor concerned; he was an insurance practitioner, but there was no question of any failure to carry out his obligations under his agreement with the insurance committee.

Smoke Abatement Bill.—The Earl of Onslow moved the second reading of the Smoke Abatement Bill in the House of Lords on July 25th, suggesting that the latest stages should be deferred till the autumn. The bill follows upon the report of the Smoke Abatement Committee, of which Lord Newton was chairman. It extends the Public Health Act so that all smoke and not merely black smoke may be dealt with. Larger fines are imposed for offences. The bill does not apply to Scotland. Lord Newton welcomed the measure as far as it went, but thought it inadequate. It ignored the recommendation that the enforcement of the law should be transferred from small local authorities to county and borough councils. He mentioned that England and Scotland were the dirtiest countries in Europe. In the London area 25 tons of soot fell per square mile per month. In Manchester alone the extra cost of washing collars due to the smoke was £50,000 a year. The bill was read a second time.

Brief Notes.

Sir Hamar Greenwood has stated that the question of the deduction of medical and surgical expenses in the case of members of the Royal Irish Constabulary injured in the exercise of duty is under consideration.

As the Port Sanitation Services are in large measure national services it has been decided to keep the provision by the State for Scottish port sanitation at £7,000. Under Section 23 of the Economy (Miscellaneous Provisions) Bill it was proposed to make the reduction of members in the Scottish Board of Health as recommended by the Geddes Committee.

Sir Alfred Mond has informed Mr. R. Richardson that, under Section 49 of the Lunacy Act, 1890, the Board of Control had full discretion to authorize any medical practitioner to visit a patient for the purposes of the section. In the exercise of their discretion the Board endeavoured to select medical practitioners who were, in their opinion, best qualified to act. The mere fact that the Board had not selected any particular medical practitioner whose name had been submitted to them was in no way defamatory, and there was no reason for consulting the law officers of the Crown in the matter.

The Prime Minister states that the War Department at Washington has recently ordered the discontinuance of the manufacture of poison gas for the purpose of equipping the United States army, but Congress has sanctioned the continuation of research and experimental work in this connexion. The proposed expenditure by Great Britain for the coming year is £169,700 for research and experimental work. Otherwise the manufacture in this country is discontinued.

The declared value of dental, surgical, medical, and veterinary instruments (except optical) registered as imported into the United Kingdom during the six months ended June 30th was £12,427. The value for the corresponding six months of last year was £20,592.

Mr. Shortt has informed Dr. McDonald that licensed importers of cocaine are required to keep records of sales, and these are inspected from time to time. The records, however, cannot show the areas of eventual distribution of the drug, as it may pass through several hands before it reaches the medical practitioner, dentist, or other person by whom it is used.

The National Health Insurance Bill went through Committee in the House of Lords on Wednesday, July 19th, and was reported on July 20th.

BEIT RESEARCH FELLOWSHIPS.

THE trustees of the Beit Memorial Fellowships for Medical Research have elected the following candidates to Junior Fellowships of the annual value of £350. The usual tenure of a Junior Fellowship is three years:

Ernest Basil Verney, M.B., B.Ch.Cantab., M.R.C.P.Lond., Assistant in the Department of Physiology, University College, London. Proposed research—The physiology and pathology of urinary secretion. (Institute of Physiology, University College, London.)

Frank Cook, B.Sc., M.B., B.S.Lond., F.R.C.S.Eng., Gynaecological Registrar, Guy's Hospital, and Demonstrator of Pathology. Proposed research—The neuro-muscular apparatus of the uterus: observations on "pregnancy toxaemia," with particular reference to the acidosis factor. (Physiological and Pathological Laboratories of Guy's Hospital, London.)

John Lewis Rosedale, B.A.Oxon., M.A., Ph.D., Holder of Research Scholarship of Ministry of Agriculture and Fisheries since October, 1920. Proposed research—The chemistry of normal and pathological tissues, with special reference to the protein and nuclein constituents. (Chemical Laboratory of St. Thomas's Hospital Medical School, London.)

Reginald Hilton, B.A.Cantab., B.Ch.Cantab., now studying the theory and practice of artificial pneumothorax in the clinic and laboratory of Dr. Rizt, Laënnec Hospital, Paris. Proposed research—The study of the blood gases in various stages of pulmonary collapse produced by artificial pneumothorax; the condition of the circulation in the collapsed lung. (Laboratory and wards of the Professorial Unit of St. Bartholomew's Hospital. The first two months to be spent at the Laënnec Hospital, Paris.)

Arthur St.G. J. McC. Huggett, B.Sc., M.B., B.S.Lond., Demonstrator of Physiology at St. Thomas's Hospital. Proposed research—An investigation of the function of the placenta in relation to the passages of gases and other substances from the mother to the foetus, and the cause of foetal apnoea. (The Sherrington School of Physiology, St. Thomas's Hospital, and the Brown Animal Institution, Vauxhall.)

Victor Douglas Allison, M.B., B.Ch., at present Research Student, Institute of Pathology and Research, St. Mary's Hospital, London. Proposed research—The investigation of the nature and properties of a hitherto undescribed substance which has a strong bactericidal, bacteriolytic, and bacterio-inhibitory action—named lysozyme. (Laboratories of the Institute of Pathology and Research, St. Mary's Hospital.)

The following Junior Fellows were elected to fourth year Fellowships of the annual value of £400:

David Keilin, D.Sc., who will study the life histories of protozoa pathogenic to insects; the life history, anatomy, and physiology of insects, at the Molteno Institute for Research in Parasitology, Cambridge, under Professor G. H. F. Nuttall, F.R.S.

Ivan de Burgh Daly, who will study auriculo-ventricular block, at the Institute of Physiology, University College, London, under Professor Starling, F.R.S.

No appointments have yet been made to the Senior Fellowships of the annual value of £500, which are only open to junior and fourth year Fellows elected on or after January 1st, 1920. The usual tenure is for three years.

All correspondence of candidates and Fellows should be addressed to Sir J. K. Fowler, honorary secretary, Beit Memorial Fellowships, 35, Clarges Street, Piccadilly, W.

TOXIC EFFECTS OF ARSENOBENZOL PREPARATIONS.

REPORT BY THE SALVARSAN COMMITTEE.

THE Salvarsan Committee appointed by the Medical Research Council has recently issued its Report* on the toxic effects following the employment of arsenobenzol preparations. The committee was established in 1918 on account of a peculiarly high incidence of fatal jaundice following the use of "606" or "914" in certain military hospitals receiving syphilitic cases. However, in spite of the fatalities occurring about that time, accidents following the use of salvarsan and its congeners have, on the whole, been very much rarer in this country than on the Continent. Especially numerous have been the deaths recorded in Germany, and public opinion was so seriously disturbed at one time in that country that two separate official inquiries were made in 1914 and 1917 concerning the value of salvarsan treatment and the injurious effects which were alleged to follow its use. The findings of these German committees of inquiry were of importance, and they receive full consideration in the report issued by the British Salvarsan Committee.

The chief statistics available to the Salvarsan Committee have been those obtained from military hospitals, as, for various reasons, less reliance can be placed on the records of civil venereal clinics. As a result of its investigations the committee has arrived at the conclusion that no special arsenobenzol preparation must be regarded as more likely than another to produce ill effects. Moreover, when accidents have occurred errors in technique in administration have seldom been found to be responsible. There have been fatalities even under the most careful control, and in large and well-equipped hospitals.

The most important ill effects which may end fatally were found to be encephalitis haemorrhagica, acute yellow atrophy of the liver, and exfoliative dermatitis and its complications. Encephalitis haemorrhagica usually occurs within two or three days after an injection, and most frequently after the second injection of the series. Disorders of the liver provide a very large number of the ill effects following arsenobenzol treatment, and may occur as an early jaundice or as a late and more dangerous lesion. The pathology of the latter lesion is still in some doubt, and it has even been suggested, especially in Germany, that it is not directly due to arsenobenzol. Skin reactions following salvarsan are fairly common, but fortunately they are light and transient as a rule, the only reaction or lesion of serious significance being exfoliative dermatitis. There exist certain other ill effects which may end fatally, but fortunately these are but rarely encountered; they include acute renal damage, ulcerative enteritis, polyneuritis, and aplastic anaemia.

Some of the ill effects which are recognized as being due to salvarsan may without hesitation be ascribed to the arsenic which it contains. The lesions capable of such explanation are gastritis, enteritis, and exfoliative dermatitis. The so-called "crises nitritoïdes," vasomotor phenomena, and liver lesions are, on the other hand, probably produced by arsenobenzol poisoning rather than by arsenic. An interesting point in connexion with the latter is the observation that cases of severe jaundice and liver atrophy appear to have occurred in the form of small outbreaks localized to one or another hospital, and restricted in time to a few months of its practice. This fact has led certain observers to suggest that these liver lesions are not directly due to poisoning but are caused by an intercurrent microbic infection of the liver. The committee does not, however, favour this view. Before stating its conclusions as to the relation of arsenobenzol compounds to the occurrence of jaundice and acute yellow atrophy of the liver, the committee has made an exhaustive study of the literature and the experimental work on the subject. A brief examination of this is sufficient to show that a great diversity of opinion still exists as to the pathology of the condition, many observers believing strongly that salvarsan is not responsible for the condition. It is, however, impossible to get over the fact that before salvarsan came into general use in the treatment of syphilis comparatively few cases of jaundice were encountered. It is difficult therefore to accept the view that the spirochaete rather than the salvarsan is responsible for the hepatic lesions. For the view that it may be produced by an infective cholangitis arising from the intestine there would appear to be more foundation. This supposition relies for support on the bacteriological findings of Stuart Macdonald and Fraenkel, who claim to have found organisms in the hepatic tissues of fatal cases. It is obvious, however, that little reliance can be placed on bacteriological examinations carried out after death and unsupported by blood cultures made during life.

But quite apart from the results of morbid histology, evidence is gradually accumulating that a course of arsenobenzol treatment is followed in practically every instance by a certain degree of hepatic insufficiency, not enough to give rise to active symptoms, but capable of recognition by means of special tests. Such tests have been carried out at St. Bartholomew's Hospital by Dr. Mackenzie Wallis, and by Spence and Brett elsewhere. For this purpose two tests have been employed—namely, laevulose toleration tests and the estimation of the lipase or fat-splitting ferment normally present in the blood. The main results obtained so far by Mackenzie Wallis may be summarized as follows: (1) The effects of one or two injections of arsenobenzol preparations are almost always very slight, and little evidence of hepatic damage may be found at the end of a course of six injections. (2) The most striking results are obtained when the tests are applied three months after the last injection. Evidence of hepatic insufficiency is then detected almost invariably, although no clinical signs of hepatic disorder may be discovered. Six months after the last injection all evidence of hepatic insufficiency has gone, in cases where three months before it was clearly in evidence. It is obvious that the importance of these findings, if widely confirmed, may be very great in connexion with the safe spacing out of courses of arsenobenzol treatment.

Whilst recognizing the importance of exercising great care in the administration of "606" and "914," the committee is completely in accord in expressing the view that arsenobenzol preparations are more efficacious than any other drug yet available for the cure of syphilis:

> "Although it is true that even this preparation cannot be guaranteed to effect an absolute cure, except in the early stages of the disease, it is now well established that a considerably larger proportion of cures can be effected by salvarsan and its allies than by any other form of treatment."

The committee's report ends with the following conclusions:

> "It is believed that the very small number of unavoidable deaths due to this treatment are immeasurably outweighed by the deaths and disabilities which would arise if the older methods of treating syphilis were alone practised. At the same time the facts which have been brought together in this report no less strongly emphasize the importance of the most scrupulous care in the administration of a drug which is necessarily employed in doses not far removed from the danger line."

* *Reports of the Salvarsan Committee.* II. Toxic Effects following the Employment of Arsenobenzol Preparations. Special Report Series, No. 66. H.M. Stationery Office. 1922. Price 2s. net.

MINISTRY OF HEALTH: ANNUAL REPORT.

FIRST NOTICE.

THE third annual report of the Ministry of Health relating to the year ended March 31st* has been issued. It consists of 166 pages, and embraces a large amount of information not covered by Sir Alfred Mond in his speech on the vote.

In the prefatory note on the conditions of economy mention is made of the appointment by the Government of a committee of inquiry under the chairmanship of Lord Meston, to report what system of Exchequer grants for locally administered services can be substituted for the percentage grant system wholly or in part. This year—as already announced—the course adopted in order to keep down expenditure is to give grants of fixed amounts for most of the services instead of percentage grants. In reference to National Health Insurance additional benefits it is stated that over twelve million insured persons in England were affected. The cash benefits of nearly four millions of these had been increased, over four million became entitled to new services, and nearly four and a half millions became eligible for advantages of both these kinds. Nearly £150,000 a year may be devoted to dental treatment, and nearly £300,000 a year to payments to hospitals or convalescent homes on behalf of members of societies which have included these additional benefits in their schemes.

Tuberculosis.

The first section of the report treats of health administration in England. Great Yarmouth and the North Riding County

* Cmd. 1713. Price 6s. To be obtained from H.M. Stationery Office or through any bookseller.

Council having completed their scheme during the year, arrangements have now been made by all the county councils and county borough councils for dispensary and residential treatment of insured and uninsured persons suffering from tuberculosis. The number of dispensaries has been raised to 421, an increase of 10. The number of tuberculosis officers working under schemes of local authorities on March 31st was 339. The total number of institutions provided by local authorities and by voluntary arrangement was 433 and the number of beds 18,884, showing an increase of 1,492 beds. The number of additional beds which have been or are being provided under the term of the circular letter of November 3rd, 1919, will, under financial stringency, be limited to under 5,000.

The cost of residential treatment of ex-service men is borne by the Ministry of Pensions. The number receiving it on April 1st was 2,789, as against 3,559 on April 1st, 1921. The Public Health (Tuberculosis) Act, 1921, enables county and borough councils to arrange for the after-care of sufferers, and up to March 31st schemes of thirty-eight local authorities for setting up committees have been approved. In London interim committees were constituted in each borough during the war, and suggestions have now been given to them to organize permanent care committees to work in co-ordination with tuberculosis dispensaries. The matter of extra nourishment for persons under treatment for tuberculosis now devolves upon local authorities. The report says:

"It was not contemplated that extra nourishment should be provided by local authorities in other than limited classes of cases where the provision was likely to be of material assistance to treatment; or that more than limited expenditure should be incurred on this form of provision."

So far 119 local authorities have undertaken the provision on the lines of the circular letter of November 3rd, 1921. The expenditure of local authorities on this service ranking for Exchequer grants is limited to a maximum of £2 per annum per thousand of the population of the area of the authority.

Venereal Diseases.

The outstanding features in the campaign against venereal diseases in England during the year were a large diminution in the number of new patients attending the treatment centres and an increase in the total number of attendances of patients. The number of patients dealt with for the first time in 1922 was 79,000, as compared with 99,000 in the previous year. The number of attendances at treatment centres was 1,534,000, as compared with 1,434,000 in the previous year. The returns of the work done at treatment centres during 1921 show that, out of 52,000 cases which were recorded as having ceased to attend at the centres during the year, 13,000 were discharged after completion of treatment and subsequent observation, 14,500 ceased to attend after completion of one or more courses of treatment but before final tests as to cure, and 24,500 ceased to attend before completion of a course of treatment.

Maternity and Child Welfare.

The report states that the whole of England is now covered more or less completely by schemes for maternity and child welfare carried out by local authorities. It is part of the duty of the medical officer of health to supervise the scheme, but the executive medical work is generally carried out by whole-time medical officers or by general practitioners. The department has, in the past, urged each authority to appoint an assistant medical officer, preferably a woman, with special aptitude and experience, to supervise the work under the direction of the medical officer of health. Ninety-three local authorities have one or more assistant medical officers for the purpose. The work of such an officer is not necessarily confined to maternity and child welfare, but is very often combined with other duties, such as the inspection of school children. The total number of women acting as health visitors on March 31st was 3,378. Of the 48,618 women on the Midwives Roll (covering the whole of England and Wales), 12,052 gave notice of the intention to practise as midwives in 1921. Eighty-two per cent. of the total on the roll are now certificated. In 1920, the last year for which figures are available, the percentage of births notified by midwives was 47.7 in London, 66.9 in the county boroughs, and 47.1 in the counties. Over 100 new district nursing associations were started in England during 1921, and only 12 of the existing associations ceased work. Of the rural population of England 71 per cent. is now provided with the services of a trained midwife. On a rough estimate, 1,400 more district nursing associations were needed to provide a complete service in rural districts, and it was hoped that as financial circumstances improved these associations would gradually be established, while others had authorized the medical officer of health to employ a nurse when necessary. Grant was payable in respect of the home nursing of maternity cases and for certain infectious diseases in young children, such as measles, whooping-cough, epidemic diarrhoea, poliomyelitis, and ophthalmia neonatorum. About 140 local authorities had contracted with the local district nursing associations. The trustees of the Carnegie United Kingdom Trust gave £100,000 to provide model centres at a cost of £25,000 each in Liverpool, Birmingham, Shoreditch, and Rhondda. It was a condition that the local authority should maintain the centre, and the department was unable to make a definite promise of grant in aid of maintenance until the estimates of expenditure on this service had been examined. It has now been found that a margin of public money is available, and steps are being taken to establish these institutions.

Welfare of the Blind.

Under the Blind Persons Act, 1920, which came into operation on September 10th, 1920, those who had reached the age of 50 were entitled to pensions as they would have been under the Old Age Pensions Act if they had attained the age of 70. On March 31st, 1922, nine thousand one hundred and seven blind persons in England and Wales between the ages of 50 and 70 were in receipt of old-age pensions. From the date of the operation of the Act to March 31st, 1922, 3,267 appeals relating to claims were received. Of these, 1,423 were referred to the regional medical staff and 45 to ophthalmic specialists on the question of the degree of blindness. The two inspectors are carrying out investigations into the voluntary agencies and are assisting local authorities to prepare schemes. The advisory committee has made numerous recommendations to the department. The committee appointed to investigate and report on the causes of blindness expects to conclude its deliberations at an early date.

Other Services.

Other sections covered in the report under the heading "Public Health" include the inspection and supervision of food, sanitary administration, housing and town planning. The report deals also with local government and local finance, the administration of the Poor Law, old-age pensions, and National Health Insurance. To this last-named part we shall recur on another occasion.

Welsh Board of Health: Public Health.

In regard to tuberculosis treatment it is stated that in Wales all the councils act for this purpose through the Welsh National Memorial Association. The contributions which the County and County Borough Councils have agreed to pay to the Association amount in the aggregate to £68,442, approximately equal to a rate of 1.34d. This represents an increase of 0.34d. on the rate agreed for the previous year. The residential institutions of the Association on March 31st consisted of four sanatoriums with 600 beds, and 10 hospitals with 501 beds. Arrangements are also made for the treatment of patients in 14 institutions belonging to other authorities or bodies. The conversion of Craig-y-Nos Castle, Brecknockshire, into a hospital with 300 beds was nearing completion, and hospitals at Sealyham, Pembrokeshire, with 30 beds, and at Machynlleth, Montgomeryshire, with 30 beds, were also nearly completed. The Association had been offered a mansion midway between Cardiff and Newport for conversion into a hospital with 100 beds, and had been authorized to proceed with the scheme. Approval had also been given for the acquisition of property at St. Bride's, Pembrokeshire, to provide accommodation for 100 children. When these hospitals were completed, two at Newport would cease to be used. There were now established in the principality 14 central dispensaries, round which were grouped 89 visiting stations.

IMPERIAL CANCER RESEARCH FUND.

THE annual meeting of the Imperial Cancer Research Fund was held at the Examination Hall, Queen Square, Bloomsbury, on July 19th, with the DUKE OF BEDFORD, K.G., President, in the chair. Amongst those present were Sir William Church, Sir Humphry Rolleston, P.R.C.P., Sir Anthony Bowlby, P.R.C.S., Sir George Makins, Sir John Bland-Sutton, Dr. William Bulloch, Sir D'Arcy Power, Sir Charles Ballance, Sir Thomas Barlow, Sir Frederick Andrewes, Dr. J. A. Murray (Director), Dr. Russell, and Mr. F. G. Hallett (Secretary).

Sir WILLIAM CHURCH, in moving the adoption of the twentieth annual report of the Fund, sketched the principal researches which had been carried on, as stated in the Director's report published in full below. The motion was seconded by Sir JOHN BLAND-SUTTON and carried.

The DUKE OF BEDFORD, in moving a vote of thanks to the executive and other committees and the treasurer (Sir

George Makins) for their services during the year, said that the income for the past year, including a legacy of £250 from the late Mr. William Crouch, has been the same within £5 as that of the previous year—in round numbers, £6,500. The treasurer, by careful economy, had been able to effect a reduction of £740 on the year's working, with the result that the excess of expenditure over income was only £12; but this sound finance has only been possible by lessening the activities of the Fund—a regrettable necessity. The financial future was brighter owing to two generous gifts for research work. The one from Lord Atholstan of £2,000 a year for ten years, which he desired should be devoted to special research; the line of this research has been decided upon by the Executive Committee on the recommendation of a special subcommittee. The other gift was one of £4,000, about to be presented to the Fund by Mr. and Mrs. Todman of Sydney, New South Wales, in memory of their daughter. Without these donations the Fund would have been compelled to have continued a policy of restricting the research work, or meeting an annual expenditure out of capital, both most undesirable. "In the early part of this year," the Duke of Bedford said, "there was a considerable correspondence in the press on the subject of cancer. All the letters, with I think one exception, showed an absence of knowledge of the facts, which have already been ascertained; indeed, it is remarkable that those who venture to address the public through the press on the subject of cancer do so without troubling to make themselves acquainted with the facts already determined. In this connexion it was thought advisable to send a letter to the *Times* on February 9th, setting out the various organizations engaged in cancer research in this country and abroad, together with a summary of the work already accomplished by our Fund." The Director's report, the Duke continued, showed that four different lines of research were being followed in the laboratories of the Fund, and it was hoped to initiate others. At present the real fundamental problems of the causation and prevention of cancer remain unsolved, and it was on these problems that the Fund was concentrating its resources. Meantime in the struggle against cancer it was of vital importance that the public mind should be impressed and seized with the enormous value of early diagnosis and treatment. Every effort therefore should be made to secure improvement in the early diagnosis of the disease. Precise methods of diagnosis involved knowledge of the mode of origin and nature of the disease, and the researches into these purely scientific aspects of the cancer problem have the greatest practical value. Thanks were due to Dr. Murray, the Director, and to Dr. Russell, Dr. Cramer, and Dr. Drew for their valuable work in carrying on the work of the Fund during the year.

Sir GEORGE MAKINS moved a resolution recommending the Royal Colleges of Physicians and Surgeons to reappoint Sir William Church and Sir Thomas Barlow, whose period of office had expired, as members of the Executive Committee; this was seconded by Sir CHARLES BALLANCE and adopted. Dr. William Bulloch, F.R.S., was re-elected a member of the Executive Committee, and Professor A. E. Boycott, F.R.S., was elected a member in place of the late Sir G. Sims Woodhead. Sir HUMPHRY ROLLESTON proposed a vote of thanks to the Duke of Bedford for presiding; this was seconded by Sir THOMAS BARLOW and unanimously agreed to.

REPORT OF DIRECTOR.

Vitamins and Cancer.—In continuation of his studies on vitamin deficiency, Dr. Cramer, in collaboration with Dr. Drew, and with Dr. Mottram of the Radium Institute, has investigated the effects of vitamin A deficiency in rats. They have found that the most constant change is a progressive diminution in the number of the blood platelets. When their number falls below half the normal (which for the rat is roughly one million per cubic millimetre) certain symptoms develop. Although there is not necessarily any loss in weight if vitamin B is supplied, the animals develop infections (such as the xerophthalmia, so frequently noted in vitamin A deficiency), characterized by the presence of micro-organisms which are non-pathogenic to normally fed animals. These infections clear up with magical rapidity when the missing vitamin A is added to the diet—for example, as cod-liver oil. Parallel to this improvement the number of platelets returns to the normal and may rise above it. If the platelets for any reason do not increase in number, the general condition does not improve and the local infections do not regress. So constant has this relation been between platelet number and the condition of the animals that the authors regard their diminution as the specific lesion of vitamin A deficiency, just as the diminution in lymphocytes measures the effects of vitamin B deficiency. The collaboration with Dr. Mottram has elicited a parallel between vitamin A deficiency and prolonged, repeated exposure to the gamma radiation of radium. Here, however, the concomitant effect on the number of lymphocytes necessitates careful spacing and dosage, to avoid the acute symptoms which accompany this blood change. When this is done a progressive diminution in the platelets is induced, accompanied by the symptoms characteristic of vitamin A deficiency. Dr. Mottram's studies, experimental and clinical, go to show that the aplastic anaemia of *x*-ray and radium workers is secondary to these changes in the lymphocytes and platelets, and is probably the consequence of similar infections with relatively non-pathogenic organisms. Repeated attempts have been made to ascertain whether vitamin A deficiency has any influence on the growth of malignant tumours. Unfortunately it is difficult to keep animals alive for any length of time after a severe degree of this deficiency has been established. In the experiments carried out so far the tumours take in the same percentage as in the control animals and grow progressively, even when the rats are moribund. The enhanced liability to otherwise innocuous bacteria frequently ends these experiments prematurely, but the results give no encouragement to the idea that withholding vitamin A could usefully assist in the control of the growth of cancer in man. They emphasize the danger of the insidious debility which vitamin A deficiency induces. The progressive atrophy of the cells and organs forming lymphocytes and blood platelets respectively, which results from the absence of vitamins A and B in the food, and which causes ill health, is also produced by exposure to *x* rays and radium. This is, in fact, one of the effects on the body as a whole which limit the degree of application of these rays in the treatment of new growths. If these blood changes develop radiation must be interrupted and the patient allowed to recover. This recovery is materially assisted by an ample supply of vitamins in the diet, which stimulate the production of lymphocytes and platelets.

Culture of Tissues in vitro.—Dr. Drew has published an account of some of the work of the past two years on the culture of normal and malignant tissues *in vitro*. He has found, as have other workers, that for continuous growth outside the body all tissues require, in addition to the ordinary food substances, certain substances only available at present in fresh embryonic extracts. Extracts of adult tissues, and possibly tumours, contain this activating principle in much lower concentration. Its nature is still unknown; it is destroyed by heating, and it cannot be replaced by glutathione. We are indebted to Professor F. G. Hopkins for a supply of this dipeptide both in the reduced and the oxidized condition. Dr. Drew has been able to prepare a liquid medium in which tissues can be cultivated, thus eliminating the use of blood plasma, which has been a great hindrance to progress in this kind of work. Cell division and differentiation can proceed normally in this medium, the essential peculiarity of which is a definite colloidal condition of the calcium salts. Interesting observations have been made on the conditions which determine differentiation of normal and malignant cells. Epithelial cells when growing alone in pure culture remain undifferentiated. When connective tissue cells are added to such pure cultures, differentiation sets in with little delay, squamous epithelium producing keratin in the familiar form of concentric corpuscles, mammary epithelium producing acinous branching structures, even when originally derived from a practically undifferentiated alveolar mammary carcinoma. These experiments, which are only at their beginning, break new ground in the experimental control of the behaviour of metazoan cells. Intimately bound up with this problem is the curious fact that the continued culture *in vitro* of malignant cells encounters difficulties not met with in the experiments with normal tissues. If degenerative changes are to be prevented the former must be frequently transferred to fresh nutrient medium. The exhausted fluid is found to have a poisonous action on the tumour cells, but normal cells can grow, apparently without damage, in these fluids. These results give the greatest encouragement to the hope that by this method of experiment the fundamental differences between normal and malignant growth will finally be elucidated.

Respiration of Tissues, Normal and Malignant.—Dr. Russell has published an account of the continuation of his researches on respiration of normal and malignant tissues, in the period of survival after removal from the body. It may be as well to repeat that earlier experiments, mentioned in last year's annual report, showed that rapidly growing tumours and certain normal tissues, notably kidney, showed such a gaseous exchange as indicated the combustion of carbohydrate, while slowly growing tumours gave respiratory quotients indicating

the combustion of fats. When, now, the emulsions of the latter group were made with solutions of glucose and certain other sugars, the respiratory quotient rose nearly to unity, showing that their parenchymata were able to oxidize these carbohydrates, if present in sufficient concentration. The attempt was made by subcutaneous injection of such sugar solutions, into animals bearing tumours, to find out whether in this way the rate of growth could be influenced. No alteration was produced.

Experimental Production of Cancer.—The experiments on the production of skin cancer by the external application of tar are being continued. They have resulted in the production of a large number of tumours, many exhibiting a high degree of malignancy, as evidenced by spontaneous lymphatic and blood-stream dissemination, but they have not advanced sufficiently far for publication, and nothing further need be said about them at present. Dr. Russell carried out an experiment on the effects of repeated inoculation of small quantities of coal tar in rats and mice. Two sarcomata were produced at the site of inoculation, one in a rat and one in a mouse, out of 50 mice and 40 rats inoculated. Autoplastic and homoplastic transplantation was successful with both these tumours, and metastases were found in the lungs of the primarily affected rat. An account of these experiments is in the press.

The recent correspondence in the lay press on cancer and cancer research exemplifies a distraction with which the worker on this subject has to contend. None of the more or less distinguished writers of the letters, with the exception of H.E. the Aga Khan, displayed any acquaintance with the results of the work of the last twenty years. The facts already known as to the occurrence of cancer in different races of mankind, and in different species of animals, published in the first, second, and third scientific reports of this Fund were treated as non-existent.

FINANCIAL POSITION OF HOSPITALS.

CONFERENCE OF LOCAL VOLUNTARY HOSPITAL COMMITTEES.

A NATIONAL conference of representatives of local hospital committees, arranged by the Voluntary Hospitals Commission, of which the Earl of Onslow is Chairman, has been held at the Ministry of Health. Representatives were present from every one of the committees now functioning in England and Wales, as well as a number of representatives from Scotland. Viscount Cave was in attendance at both sessions, as well as Lord Clwyd, Lord Somerleyton, Sir George Makins, Dr. R. A. Bolam (representing the British Medical Association on the Commission), and Captain W. E. Elliot, M.P.

Lord ONSLOW, in opening the proceedings, said that the policy of the Government was to maintain intact the voluntary hospital system. The first duty of the Commission was to administer the grant made by Parliament to meet the immediate needs of the hospitals, and the administration made local machinery necessary. Such machinery already existed in London in the shape of King Edward's Hospital Fund; elsewhere committees had to be set up, and there were now 54 such bodies and only eight areas in which committees were not functioning. It had been anticipated, largely on the basis of the figures for 1920, that the hospitals' deficit for 1921 would be £1,000,000, and the grant was intended to cover half that deficit. The Commission had decided that, subject to some final adjustment when all areas had sent in their claims, the sum of £225,000 should be allocated to London, and £275,000 to the rest of the country. It appeared, however, that the deficit might be only £750,000, and in that case a sum of £125,000 out of the £500,000 grant would remain to be allocated after half the 1921 deficiency had been met. The distribution of this residue would have the anxious attention of the Commission. All the information before the Commission tended to show that the cost of maintenance was declining and that the income was certainly being maintained, and in many cases increased.

A Standing Consultative Committee.

The first matter dealt with by the Conference, on the initiative of the Manchester Committee, was a proposal for the setting up of a standing consultative committee to represent all the local areas as far as possible, and to act as a liaison between the Commission in London and the local bodies. Dr. C. E. S. FLEMMING was anxious that every type of hospital, from the teaching institutions to the cottage hospitals, should be represented; and Sir ARTHUR MAY that representatives of the less populous areas should be included. This last suggestion was adopted as a rider to the main proposal, which was agreed to unanimously, and it was understood that this consultative committee, to consist of some twelve or fifteen persons, would be appointed in the first instance by the Commission itself.

Local Committee Administration.

Mr. H. N. CROUCH (Somerset) said that the committee areas should be regrouped; it was not desirable that city hospitals should be worked independently of country hospitals. A resolution that each area should be so arranged as to constitute a suitable unit for bringing about better co-ordination between existing hospitals was tacitly agreed to, and was referred to the local committees for their observations.

On a question raised at the instance of the North Wales Committee as to payment of administration expenses of local committees, Lord CAVE said that the committee over which he had presided had difficulty in recommending that the voluntary committees should have the right to payment of expenses from county or other public funds, but he thought the matter capable of amicable adjustment with the local authority in each area, and said that his own county council (Surrey) had provided a bank balance for the committee.

Hospital Extension.

It was agreed, on the motion of Lord ONSLOW:

That local hospital committees should not recommend any extension scheme to the public unless they are satisfied:

(*a*) That the extension is necessary and is planned on a reasonable scale and that the services cannot be provided by co-operation with other institutions;

(*b*) That sufficient funds will be available within a reasonable time for the execution of the scheme or an effective part of it; and

(*c*) That funds are or will be available to meet the cost of maintenance of the hospital, including any additional maintenance charges resulting from the extension, and that the appeal for capital expenditure will not prejudice the raising of the funds required for the maintenance of the hospital itself or other institutions in the area.

Administration of Government Grant.

A long discussion took place on the administration of the Government grant. The Devonshire Committee proposed that the average deficiency over a period of three years should be adopted as the basis of distribution instead of the deficiency in 1921, and the Manchester Committee that accumulated deficits should be taken into account in fixing grants. Mr. H. R. MAYNARD (secretary of the King Edward's Hospital Fund) said that in the case of any residue his Fund had given preference to cases in which the accumulated deficits had been such as to exhaust the borrowing powers of the hospital. A hospital might not be gravely hampered by a temporary deficit even if it extended over two or three years; the whole situation of the hospital must be considered. Lord CAVE agreed that any balance of the Government grant remaining after the deficit for 1921 had been met should be applied to the reduction of the accumulated deficits of previous years. Lord ONSLOW believed that the residue must be distributed on the basis of the accumulated deficits previous to 1921, but the distribution would in any case be difficult, and would probably give rise to criticism.

Workpeople's Contributions.

Mr. WALTER DAIN (Manchester) drew attention to the need for systematic collection from employers and workpeople. He suggested that the Commission should approach the Federation of British Industries and obtain the support of the trade union leaders also. Mr. F. M. OSBORN (Sheffield) gave particulars of the joint hospital council, embracing several hospitals in Sheffield, which in 1921 launched a scheme for workmen's contributions; the appeal to each workman was to set aside 3d. a week for the hospitals, and to the employers to add one-third to the workmen's contribution. Under this scheme last year £21,000 was received, and it was estimated that in 1922 the amount would be £28,000. There were 120,000 contributors; they had the right to treatment at a hospital on the presentation of a letter; non-contributors, other than the necessitous poor and children, were interviewed by lady almoners and asked to pay for their hospital treatment according to their means. Contributors were represented on the hospital boards and on the joint council. Unfortunately, municipal corporations were prevented from making the employer's contribution, and he hoped that this restriction would be removed. A representative from Chesterfield said that a scheme of contribution for employers and employees had been in operation there for twenty years. The workpeople subscribed at the rate of 2½d. a week, the employers generally added one-third, and during last year £12,000, or 60 per cent. of the hospital income, was raised by this means. The Norfolk representative said that in his county 80,000 people had contributed to a scheme, which had a paid organizer and was worked through the Hospital Saturday Fund.

Approved Societies.

Sir WALTER KINNEAR (Controller, Insurance Department, Ministry of Health) described the efforts which had been made to interest the 9,000 approved societies. Unfortunately, the issue of the valuations report synchronized with a period of high cost of living, and the majority of the societies decided to devote their surpluses to increasing the sickness benefit under the Insurance Act. Nearly a thousand societies and branches, however, had been persuaded to devote a portion of their surplus to hospital provision, and schemes had been approved for the next five years, which should bring in £200,000 a year. The scheme, however, was not working well, owing to certain technical difficulties which he described, and up to the present only about £30,000 had been paid out. The difficulty arose over the arrangements for members of the societies to get treatment.

Other Methods of Raising Revenue.

The Birmingham Committee drew attention to the need for collecting contributions from areas not possessing facilities for hospital treatment. The question of payments by patients was on the agenda, but was barely introduced, owing to shortness of time. No resolution was taken on these matters, but it was agreed that the Commission should issue a set of questions to all committees as to the methods of collecting contributions and publish the results.

Co-ordination of Hospitals in Areas.

Lord CAVE, at the close of the Conference, said that although the first function of the local hospital committees had come to an end, he hoped they would remain in being to bring about the co-ordination of hospitals in the different areas. It was wasteful to have two great hospitals close together, and also to have hospitals in the same area equipped alike. He looked forward to a scheme, somewhat on the lines of Lord Dawson's report, in which there would be considerable mobility in the transfer of patients from one kind of hospital to another, as required. The committees had an important part to play in organizing or inspiring the collection of funds. Another duty which might be thrust upon them was the regularization of the system of keeping hospital accounts. He hoped that the Commission also would remain in existence. It might be that in time it would be superseded by some body wholly unconnected with the Government, but for the present it was very desirable that it should be under the Government aegis.

POOR LAW MEDICAL OFFICERS' ASSOCIATION.

THE annual meeting of the Poor Law Medical Officers' Association was held at the offices of the British Medical Association, London, on Thursday, July 13th. At the opening proceedings, Dr. A. E. COPE (Chairman of Council) presided. Sir Arthur Newsholme was elected President in succession to the late Surgeon General Sir George Evatt. The annual report and balance sheet were approved and adopted. There being no other nominations the officers and Council of the Association were re-elected for the ensuing year.

Sir ARTHUR NEWSHOLME, the newly elected President, was heartily welcomed, and gave from the chair an interesting address. He paid a high tribute to the memory of the late President, referring to Sir George Evatt's persistent optimism and his longing to benefit his fellows. His fervent desire had been to do good and scatter the forces of evil and of disease.

The history of medical attendance on the poor in this country was regarded by Sir Arthur Newsholme as tantamount to the history of civilization. No one test of our distance from barbarism equalled that furnished by the care of the sick poor. Passing in review this progress from barbarism, he traced the history of the Poor Law service from feudal times to the present day. The Act of Richard II, in 1383, contained the beginnings of the principle of "settlement" which had been so mischievous in preventing the mobility of labour. During the reign of Charles II in 1662 this Act was renewed and extended. It made labourers cling to their parish under conditions allied to slavery, and caused untold injustice, fraud, ill will, and endless litigation, which had extended even up to the present time. Prior to the reign of Henry VIII the wanderings of vagrants had been controlled by terribly severe enactments. The drastic punishments, when no relief agencies existed, were found to provide no remedy. About this time a distinction was drawn between the sick and impotent who were unable to work and the lusty unemployed who could work. In the reign of Queen Elizabeth power was given to the magistrates to levy a tax on voluntary defaulters. The Church was utilized for this task, and thus in the earlier days going to the "parish" had an ecclesiastical rather than a modern Poor Law signification. Overseers were appointed to provide for the impotent and to provide work in exchange for relief. Thus the coupling of work with relief became firmly established. It was towards the end of the seventeenth century that the institution of workhouses led to a great reduction in the claims on the poor rate. By Gilbert's Act (in 1782) the management of poor relief was no longer to remain entirely in the hands of overseers and churchwardens. The administration of the funds was entrusted to the magistrates, who were to appoint visitors and guardians, the latter being paid officials with duties like those of the modern relieving officer. This altered the fundamental principle of the workhouse. In 1796 outdoor relief to the able-bodied was specifically legalized. Following this and similar changes the cost of relief bounded up. In 1834 the public funds were regarded as a regular part of the maintenance of agricultural labourers. These funds were administered in an absolutely uncontrolled manner. Then came the Royal Commission on the Poor Law in 1834, which concluded that the abuses and evils of the existing system were the direct result of indiscriminate outdoor relief to the able-bodied, and the condition was laid down that the pauper's economic situation on the whole shall not be made really or apparently so eligible as the situation of the independent labourer of the lowest classes.

Then followed the formation of larger Poor Law unions, and a rapid reduction of outdoor relief for the able-bodied. Sir Arthur Newsholme showed by statistics that the problem became one of old age, and when not old age it was sickness largely. Nursing by paupers had been prohibited in 1895. So rapid had been the organization of medical treatment that at this time there were twice as many beds in Metropolitan Poor Law infirmaries as in the voluntary hospitals, and nearly as many as in all the voluntary hospitals throughout England and Wales. The improvement in the quality of medical attendance and nursing in the best infirmaries had been no less remarkable. He considered it was only possible to solve satisfactorily the general hospital problem by securing more complete co-ordination of the work of the voluntary and special hospitals, thus relieving voluntary hospitals of a large number of chronic and incurable cases. Deterrent administration was legitimate for the able-bodied, though investigation of causes and conditions would often supply a more rational line of action, but for the actually sick the best which medical knowledge and devoted nursing could supply must be given. However the illness had been acquired, it was imperative, not only in the interest of the patient but also to secure the welfare of the community, that treatment should be prompt and adequate, and that no partial definition of what constituted medical treatment should be tolerated. To realize the full utility of Poor Law work it must be linked up with public health work by the closest bonds.

Quoting from his own last annual report as Medical Officer of the Local Government Board (1917-18), Sir Arthur said that Poor Law medical officers visiting the homes of the very poor, and familiar with their home conditions, became part-time Medical Officers of Health. But the attempt to combine prevention and treatment proved unsuccessful because the Poor Law medical officers visited only a small proportion of the dwellings of the poor, because they were not trained in prevention work, and because the good seed of preventive work was choked by the increasing competition of private medical practice. Ere long it should become practicable under more favourable conditions for medical practitioners engaged in clinical work, partially or entirely at the public expense, to be on the staff of the local public health authority in the district covered by their practice while carrying on their clinical work, to the great advantage of patients and of the public, as well as of the medical practitioners themselves. This would need to be organized in connexion with a general service, curative as well as medical. Its realization, though difficult, presents no insuperable difficulties.

Concluding his address the President considered that whatever changes were made the work and appointment of district medical officers must remain. Their present pay was inadequate. In the past they had been definitely exploited. Medical men had been found willing to undertake the work for insufficient pay so as to prevent the intrusion of rival practitioners. The preventive aspects of their work had not been sufficiently developed. Their relation to the institutional treatment of their patients had been unsatisfactory. The pressure in favour of reform would increase, and he looked forward to the time when their work would receive the acknowledgement, both socially and financially, which its national importance demanded.

Dr. ARTHUR DRURY proposed a hearty vote of thanks to the President for his inspiring address. This was seconded by Dr. RIDLEY BAILEY, supported by Dr. A. E. COPE, and enthusiastically carried.

Scotland.

VISIT OF FRENCH MEDICAL MEN TO EDINBURGH.

DURING the week ending July 22nd Edinburgh was visited by the Dean of the Faculty of Medicine of Paris (Professor Roger) and by the obstetric physicians who in 1921, and again in the present year, gave instruction in midwifery to the men and women students from Edinburgh who went to Paris. These teachers were Professor Paul Bar and Dr. Couvelaire, who taught the men students, and Dr. Brindeau, who cared for the instruction of the women. Reference was made in the JOURNAL (March 12th, 1921, p. 400) to the work in Paris at the Clinique Tarnier and at L'Hôpital de la Pitié, in which the men and women respectively were accommodated. Dr. Trelat of Lyons also formed one of the party visiting Edinburgh, and there were some four or five French undergraduates. Professor Lorrain Smith, Professor Alexis Thomson, and Drs. Haig Ferguson, Lamond Lackie, Arthur Sinclair, and Oliphant Nicholson acted as hosts. On Tuesday, July 18th, the French guests were shown over the University, the Royal Infirmary, and the Royal Maternity Hospital. At the last-named institution they were received by Drs. Haig Ferguson and Lamond Lackie, and a photograph of the party was obtained in the garden behind the Ante-natal Department. Various entertainments and excursions had been arranged for the following days, and these were all carried out comfortably, the weather remaining fine during the whole of the visit. On Friday Professor Roger received the honorary degree of LL.D. from the University of Edinburgh.

DINNER OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

The annual dinner of the Medico-Psychological Association of Great Britain and Ireland was held on the evening of Wednesday, July 19th, 1922, in the Hall of the Royal College of Physicians, Edinburgh, with the President of the Association, Professor George M. Robertson, in the chair. The guests included Lord Provost Hutchison, Principal Ewing, Professor Lorrain Smith, Dr. C. Hubert Bond, Professor E. W. White, Sir George Paul, Sir Arthur Rose, Sir Robert Armstrong Jones, Sir Robert Philip, Sir David Wallace, Dr. J. G. Soutar, Mr. J. G. Jameson, M.P., Sir John Findlay, Sir Frederick Mott, Professor Alexis Thomson, and others. After the loyal toasts, Dr. J. G. Soutar proposed the toast of "The City of Edinburgh." He spoke of the warm affection in which Edinburgh was held by all who had enjoyed its citizenship and their pride not only in the beauty of the city itself but also in its glorious past. Lord Provost Hutchison, in replying, said that the fame of the city was in great part due to its medical and surgical school; as the science of psychiatry became better known he felt sure that Edinburgh would take a foremost place in this branch of medicine also. He felt that the city was peculiarly honoured not only in having as their guests the members of the Medico-Psychological Association this year but also in the election to the presidential chair of Professor Robertson. He also cordially welcomed to Edinburgh the distinguished French physicians now on a visit to the city. Dr. C. Hubert Bond, in proposing the toast of the University of Edinburgh, spoke of the affection in which the Alma Mater was held by all alumni. Edinburgh had not only instituted a chair of psychiatry but by arrangement with the managers of the Royal Edinburgh Hospital at Morningside the post of Professor of Psychiatry and superintendent of that hospital were one, and the election was vested in the two bodies. The city and university were alike fortunate in having Professor Robertson as the first holder of this chair. Principal Sir Alfred Ewing, in reply, emphasized the imperial character of the university, drawing its students as it did from all parts of the empire and sending them forth with the torch of learning to diffuse knowledge to the ends of the earth. More and more the world was looking to the universities as its guide, and if civilization were to be rescued from the slough in which it found itself it would largely be due to the influence of the universities. The speaker emphasized the educational value of the chair of psychiatry, and the satisfaction the university felt in that the chair was filled by a man of such intellect and breadth of vision as Professor Robertson. In conclusion he welcomed as honoured guests the Dean of the Faculty of Medicine in the University of Paris and his colleagues. Mr. J. G. Jameson, M.P., in proposing the toast of the General Board of Control, referred to the good feeling which existed between the Board of Control and the local authorities. Sir R. Armstrong Jones and Sir Arthur Rose, D.S.O., replied. The toast of the Medico-Psychological Association was proposed by Sir R. W. Philip, who referred to the great advances and improvements in the asylum system and the altered point of view with regard to the mentally defective; he was now treated as a sick man whom we were out to help. As President of the Royal College of Physicians he welcomed the association to their hall, in which hung the portraits of Professor Laycock, Sir John Batty Tuke, and Sir Thomas Clouston. He congratulated the association on their choice of President. The Chairman, in replying, commented on the work that had been done by the association in the training of mental nurses in the duties of the profession. He also referred to the presence of representatives of France as the honoured guests of the association, and called on the company to join with him in honouring the toast of France.

TYPHUS AT RAASAY.

An outbreak of typhus on the island of Raasay was reported to the Scottish Board of Health last week. Although under the Highlands and Islands Medical Services scheme the island is under the supervision of Dr. Morison, Portree, the parish medical officer, there is no doctor resident on the island. On the occurrence of the outbreak the District Committee represented to the Board the desirability of arranging for the temporary appointment of a medical officer who would reside on the island to cope with the outbreak, and through the courtesy of the Midlothian and Peebles District Board of Control and of Dr. J. H. C. Orr, superintendent of the Rosslynlee Asylum, the Board were able to obtain the services of Dr. Francis Sutherland, M.B., Ch.B., D.P.H.

Correspondence.

THE PROCESS WHICH RESULTS IN AURICULAR FIBRILLATION.

SIR,—Sir James Mackenzie's article (July 15th, p. 71) is suggestive. May I draw the attention of your readers to the fact that the disparity between Sir James's conclusions and the theory of the circus movement is fundamental, each excluding the other?

Before I proceed further I should like to make one or two points clear in regard to the theory of the circus movement. We may readily admit that a serious attempt has been made by means of experiments to prove that the mechanism underlying fibrillation is a simple circus movement along one of the venous orifices of the right auricle. However, the conclusions arrived at by Sir Thomas Lewis and his co-workers in regard to the nature of the mechanism underlying fibrillation as expounded in the Oliver-Sharpey lectures and in *The Heart* are not based on experiments at all. They are based on a gratuitous assumption for which no attempt whatsoever was made to produce a shred of evidence.

Unlike some of the predecessors of Sir Thomas Lewis who adopted the circus movement theory, he assumed that the cause which gave rise to fibrillation disappears with the onset of the abnormal rhythm. The cause of the continuation of fibrillation is the circus movement itself, and there is no relation whatsoever between the pathological condition of the heart and the abnormal rhythm. The auricle continues fibrillating for years just because once the circus movement started there is nothing to interrupt its course. While the auricle is in a condition of fibrillation it is perfectly normal. Accordingly, all that is necessary in order to restore the normal rhythm is to interrupt the circus movement. It was thus a gratuitous assumption which led to the amazing conclusions and not experiments.

It is obvious that if fibrillation is due to loss of control of a "higher agency," as Sir James maintains, the cause which originally gave rise to fibrillation remains potent even after the onset of the abnormal rhythm. What use would there be in attempting to interrupt the circus movement in order to abolish fibrillation, as recommended by Sir Thomas, if the cause still remains? The moment the circus is interrupted it would be restored again. This is also evidently the opinion of Sir James, who knew my criticism of the circus theory.

Clearly the circus movement theory as expounded by Sir Thomas Lewis becomes untenable once an attempt is made to explain auricular fibrillation on lines similar to those of other pathological phenomena.—I am, etc.,

Liverpool, July 17th. I. HARRIS.

SIR,—After reading Sir James Mackenzie's article (July 15th, p. 71) I venture to think that as regards fibrillation in striated muscle a personal observation may be of interest.

Last summer, whilst working all day at the Liverpool Heart Clinic, I found myself getting out of condition through want of exercise and was frequently troubled with cramp in the lower extremities at night. To obviate this I went in for physical jerks of a morning in the bathroom, and in doing one of the exercises too energetically believe I ruptured some of the fibres of the left soleus, which caused me to be lame for about a fortnight and increased the frequency of the attacks of cramp in that calf.

Early one morning, after an unusually severe attack in which no sooner had I managed by manipulation to ease one spasm than some accidental movement would bring on another, I was sitting cross-legged on the outside of the bed idly staring at the leg, hoping that the disturbance was at an end, when a flickering of the skin over the affected parts, on which the sun was shining, attracted my attention. After putting on my spectacles I found that the flickering of the skin was limited to an area along the inner border of the tibia in its upper half about one inch by three inches. The flickering was rapid and of variable extent, sometimes just a little dimple, then a dimple and a short flash, then a multitude of flashes of all lengths. It waxed and waned like a display of aurora borealis, but I could make out no periodicity. After a time I shifted round so as to get the sun on the right leg. Here the corresponding area was quiet, but on flicking the posterior border of the tibia sharply with my middle finger-nail and thumb I managed to set up a similar display, but not so marked as in the injured leg. The above description is merely from recollection, as I cannot lay my hands on my original notes. I may say that I have occasionally seen a similar display over about the sixth and seventh left intercostal spaces in cases of effort syndrome in whom counting the ribs causes little flash-like horizontal ridges to appear along the left border of the sternum.—I am, etc.,

Manchester, July 22nd. FRANCIS HEATHERLEY.

THE NATURE AND SIGNIFICANCE OF HEART SYMPTOMS.

SIR,—Sir James Mackenzie, in the BRITISH MEDICAL JOURNAL of July 15th, in response to Dr. Strachan's letter of July 1st, says: "He is quite right, and I shall take his suggestion, and use the word 'power' in place of 'force' in future." It is not clear to me that Dr. Strachan is quite right, or that Sir James will do well to use the word "power" in place of "force" in future. "Reserve force" and "rest force" would then read "reserve power" and "rest power." I can understand what *reserve energy* or *potential energy* is, but "reserve power," and especially "rest power," have no apparent meaning.

The definitions of these terms are as follows:

"Force is that which produces (if unopposed) or tends to produce (if opposed) motion in matter."

"Energy is the capacity for doing work." It is measured by the amount of work done or doable.

"Power is the rate at which work can be done." Power, if uniform, is the amount of energy transformed divided by the time required for the transformation. The horse-power of an engine, or of the heart, depends on the amount of work it can do in a unit of time—that is, its rate of working.

Energy correspondents to capital, and power to rate of expenditure. As applied to the heart the term "force" would be used to express the effort of the heart to work, "energy" the amount of work the heart does or can do, and "power" the rate at which it does it.

When in 1911 Dr. Mackenzie said, "The rest force is the minimal force which the heart can exert to maintain the circulation at a level consistent with life," I pointed out that he should have said, "It is the minimal *energy* which the heart can expend to maintain the circulation at a level consistent with life." The word "power" might have done there as expressing the minimal work done at the minimal rate, but the term "energy" seems more clear and precise.

All three terms have their uses and values, and I hope that Sir James Mackenzie will not adopt "power" and exclude "force" and "energy," but be impartial in the use of all as occasion demands.—I am, etc.,

Clyst St. George, Devon, July 18th. D. W. SAMWAYS.

BUBONIC PLAGUE TREATED WITH NEO-SALVARSAN.

SIR,—In a memorandum on bubonic plague treated with neo-salvarsan, in your issue of July 22nd, Dr. Ram Mansoor states that "prophylactic treatment by vaccines confers immunity for a very limited period, and even then the results are not very encouraging. Some years ago, in a small village in the Punjab, inhabitants were inoculated with vaccine, but unfortunately more than three-fourths died."

A statement of this kind is apt to do an immense deal of harm, because anyone reading it who has not had experience of the great value of Haffkine's prophylactic in outbreaks of plague would likely conclude that the inoculations are not only useless but also dangerous. Dr. Ram Mansoor does not mention that the Mul Kowal tragedy happened twenty years ago, and was due not to the prophylactic prepared in the laboratory, but to an accident that occurred to the contents of one of the bottles just before use by which one bottle out of a brew of five became contaminated with earth and the tetanus bacillus. The circumstances attending this accident were that the assistant, when removing the cork of one of the bottles, let the forceps he was using for that purpose fall to the ground, and instead of immediately sterilizing by heat, as should have been done in the flame of the lamp before further use, he simply dipped the forceps for a moment in a solution of carbolic acid, and then proceeded to withdraw the cork, contaminating the contents of the bottle with the drippings from the soiled forceps.

As regards the period of immunity conferred by inoculation with Haffkine's plague prophylactic, it is longer than that conferred by either typhoid or cholera inoculations, while the results, instead of being, as Dr. Ram Mansoor asserts, "not very encouraging," are on the contrary very good and of much service, the average reduction amounting to three times fewer attacks among the inoculated, and shou'd the inoculated take plague the chances of death are reduced at least twice. Accordingly, the chances of escape from death are six to one in favour of the inoculated, and in many cases they have been more than ten to one in favour of the inoculated.

For populations exposed to infection of bubonic plague and living under crowded and insanitary conditions my experience is that inoculation with Haffkine's prophylactic is one of the quickest and most powerful weapons we at present possess in preventing the spread of an outbreak of plague, and that it is quite harmless provided proper precautions are taken in its application.—I am, etc.,

London, N.W., July 24th. W. J. SIMPSON, M.D.

TENDON TRANSPLANTATION.

SIR,—In a clinical lecture on tendon transplantation, published in your issue of July 15th, Mr. Ollerenshaw refers to a statement made by me in a lecture published in the BRITISH MEDICAL JOURNAL of April 9th, 1921. The statement was to the effect that, though open to conviction, I had not at that time seen a transplanted "biceps contract alone at will and produce extension of the knee-joint."

I feel it is incumbent upon me to admit that since writing those words I have been convinced that such a movement *can* take place as the result of voluntary contraction of transplanted hamstrings. Early this year, at a meeting of the Orthopaedic Section of the Royal Society of Medicine, Dr. Pugh showed a case of poliomyelitis in which Mr. Trethowan had transplanted the biceps and, I think, the semitendinosus into the patella. In this case extension of the knee was undoubtedly produced by voluntary contraction of the transplanted muscles. The fact that some who saw the case thought they could feel evidence of slight return of power in one of the quadriceps muscles did not in the least disturb the general conviction that the movement was produced by the biceps and semitendinosus and not by the quadriceps. I still think that in the cases in which this operation is followed by an apparently successful result the quadriceps has almost invariably recovered some of its power unexpectedly.—I am, etc.,

London, W., July 24th. H. A. T. FAIRBANK.

THE PROTECTION OF RADIOLOGISTS.

SIR,—It is remarkable that, in the preliminary report of the *X*-ray and Radium Protection Committee, no warning has been given of the danger from unprotected valve tubes.

X-rays are emitted from nearly all valve tubes as they

become harder, hence the danger to workers is very considerable, especially in the case of powerful installations where a battery of a dozen or more valve tubes may be employed.

Workers would be well advised to remember that it is as essential to surround the valve tube with adequate protective material as it is the *x*-ray tube itself.—I am, etc.,

A. C. NORMAN,
Director, *X*-ray Institute of Iraq, Baghdad.

July 8th.

THE TEACHING OF PSYCHOTHERAPY.

SIR,—In the course of your admirable article entitled "What is a consultant?" you take occasion to reprove those of us who practise psychotherapy for accepting patients other than those who have been introduced by a general practitioner. Our reply to this is that "We must live," even though by that statement we lay ourselves open to the retort on the part of some at least of our medical brethren, "We do not see the necessity." The psychotherapist is in a peculiar position which marks him out from the consultant in general, and that is that he is not called upon to advise, but to treat. If he consider the case a suitable one for his specialty, he must of necessity replace the family practitioner and take over the case entirely himself. It is therefore only natural that the general practitioner, who is most probably himself somewhat distrustful of psychic methods, should hesitate before passing on his patient. It would be better, from the point of view of both the patient and the psychotherapist, if the specialty were looked at from the same angle as is a surgical operation.

The practitioner does not complain that the surgeon he calls in takes the case out of his hands and applies the treatment himself; nor does the patient complain of the long convalescence and the large fees which he has to pay. Both these things are looked upon as inevitable. It is far otherwise at present with psychotherapy. The public are in this matter somewhat ahead of the medical profession, and seek us out, albeit shamefacedly. But were they backed up by the confident recommendation of the family physician our task would be easier and more satisfactory. As matters stand we are either looked upon as quacks or expected to perform miracles of healing in the space of a week or so. The remedy obviously lies in the education of the profession in the scope and usefulness of psychotherapy. This can only be done through the medium of the medical schools and hospitals. As far as I am aware there is at present no medical school which gives any space to psychotherapy in its curriculum. No doubt this is partly due to the idea that the science is still in a state of flux, and that it cannot be taught until a more stable condition has been reached. This is a misconception, as examination of the teachings of the pioneers Freud, Jung, and Adler would show that the differences between the rival schools are those of technique rather than fundamental. The fact that so many of our leading neurologists now give full recognition to the value of psychotherapeutic methods proves that the groundwork of the new psychology is sufficiently firmly based to make it possible and profitable to teach it to students.

A further difficulty is this. Supposing the student to have had his interest in psychology and functional nervous disorders quickened and stimulated by a course of lectures, how is he to acquire the necessary technique? The nature of the psycho-analytic method makes it impossible to treat cases before a crowd of students, or, indeed, in the presence of anyone except the analyst. This difficulty will always remain, but although students cannot therefore be shown the science in working, it should be possible to exercise them in the interpretation of dreams, and if only some half-dozen keen spirits were to work systematically at the interpretation of their own dreams under the guidance of the lecturer their combined researches might shed light on many of the problems of dreaming which are still obscure. I do not suggest that any freshly qualified student should at once apply himself to the practice of psychotherapy as a specialty, however keen his interest may be. Experience in the treatment of general diseases, some knowledge of the world, and above all a thorough insight into his own personal problems are indispensable for the psychological physician. These things can only be acquired with time; but whether or no the student eventually takes up the specialty whole-heartedly his psychological training will stand him in good stead both in his professional and private life, and will not be the least part of the equipment which makes for success.—I am, etc.,

R. MACDONALD LADELL.

Birmingham, July 18th.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on July 19th the following medical degrees were conferred:

M.D.—O. Heath.
M.B., B.CH.—T. L. Hillier, H. Spibey.
M.B.—H. E. H. Oakeley, C. B. Clarke.
B.CH.—A. A. Gemmell, A. G. F. McArthur, C. J. Fenny, B. Mountain.

UNIVERSITY OF EDINBURGH.

AT the degree ceremony on July 21st the honorary degree of Doctor of Laws was conferred upon fourteen persons, including Sir Isaac Bayley Balfour, K.B.E., M.D., F.R.S., Professor Emeritus of Botany in the University; Sir J. Halliday Croom, M.D., F.R.C.S., F.R.C.P., Professor Emeritus of Midwifery in the University; Bretland Farmer, D.Sc., F.R.S., Professor of Botany and Director of the Biological Laboratories, Imperial College of Science and Technology, London; Professor H. Roger, Dean of the Faculty of Medicine of the University of Paris; Sir Charles Scott Sherrington, G.B.E., M.D., LL.D., F.R.S., Professor of Physiology in the University of Oxford, President of the Royal Society; and John Thomson, M.D., F.R.C.P.E., Consulting Physician to the Royal Edinburgh Hospital for Sick Children, formerly University Lecturer on the Diseases of Children.

The Senatus recently offered to confer the same degree upon Mr. J. Garton, who had accepted it, but died before he could be presented. Mr. Garton first showed that the common grain crops and many other plants are self-fertilizing; he also invented the process of multiple cross-fertilization of crop plants and produced hundreds of new and improved varieties, which greatly increased the yields of all the common crops of the farm. Twenty-two years ago Mr. Garton provided the means to establish the Garton lectures on Colonial and Indian agriculture, and subsequently permanently endowed them as an integral part of the work of the chair of agriculture.

The following degrees were also conferred:

M.D.—*J. Anderson, Rachel M. Barclay, †L. van R. Becker, *W. T. Benson, H. C. D. Cross, F. G. Foster, †F. R. Fraser, N. Hirschman, G. G. S. Johnston, †A. Langwill, *J. H. Lechler, T. Lindsay, M. Lipschitz, J. C. Macartney, ‡J. E. M'Cartney, *P. K. M'Cowan, Anne L. MacDonald, *G. Mackie, A. F. W. Millar, *G. F. B. Page, Dewan Hakumat Rai, H. E. Rawlence, Joan K. Rose, G. Stewart, S. J. Taylor, *P. Vieyra.
CH.M.—‡W. Q. Wood.
D.Sc.—G. W. M. Findlay.

* Commended for thesis. † Highly commended for thesis.
‡ Awarded gold medal for thesis.

M.B., CH.B.—S. M. Alexander, Margaret Allice, W. L. Balfour, Davis Anne D. Bannerman, F. D. M. Beaton, Margery E. Bennet, J. H. van den Berg, Elizabeth S. Blair, Victoria E. Brander, Jean T. W. Bucknell, †E. Bulmer, Jane G. H. Burnet, C. W. Burns, J. C. Caird, Isobel J. Callender, I. G. Cameron, Esther J. Campbell, Grace Campbell, Helen T. Campbell, Mary C. Campbell, Elizabeth B. Clark, F. W. P. Cluver, G. G. Cochrane, T. A. Cochrane, J. W. P. Collier, †Jean M. T. Connochie, H. K. Corkill, J. C. B. Craig, E. J. Crawford, F. G. Creaser, Margaret M. Creaser, Lilian M. Croskery, *B. M. Dick, Gladys H. Dodds, C. E. Dorsch, Jessie A. P. Dower, H. A. Eadie, *Jessie Eeles, E. L. Ewan, L. Feldman, T. Ferguson, Helen L. M'K. Fisher, J. E. Fletcher, †C. H. Fouché, Beatrice C. Galsworthy, Hilda R. Gibbs, E. S. Gordon, Alice J. Gray, Margaret A. Green, H. Greenberg, J. B. Gyle, J. S. Harris, J. A. Hart, Hilda R. Hay, Janet M. Henderson, J. M'A. Henderson, Enid M. Hern, W. N. Hood, J. S. Hovell, Sheila Hunter, W. M. Hyslop, R. G. Inkster, G. W. Ireland, H. Jamieson, E. M. Jenkins, Nora A. Jones, Elizabeth R. Kemp, Catherine G. Ketchin, A. J. Kilgour, Isabel F. King, N. Kretzmar, E. G. Lawrie, †W. R. Levie, S. Lipetz, J. H. Loots, A. J. Lübbe, M. G. L. Lucas, S. L. Lucas, K. Lumsden, Betty Macdonald, *D. T. M'Donald, D. Macdonald, *J. R. M'Donald, †A. M'Farlane, R. Aeneas C. M'Intosh, D. P. MacIver, D. F. MacKenzie, J. F. Mackie, K. D. Mackintosh, R. A. MacNab, K. A. Macrae, †A. M. Marr, J. Martin, †T. M'W. Millar, J. C. Moir, Janette C. Morrison, A. H. Mowat, Jessie E. M. Munro, R. Munro, J. K. Murray, Dorothea M. Norwell, Jessie R. H. O'Sullivan, Dorothy M. Patrick, H. Penn, Dorothy G. E. Potter, C. M. Rautenbach, †F. W. Rawlings, *W. M. Robb, Isabel M. Roberton, J. D. Robertson, Robina A. M'F. Scott, D. M. Scrimgeour, Marjorie K. Semple, S. Sieff, †T. Skene, A. G. Smith, Marjorie V. B. Smith, Eva Stewart, H. G. Stockley, Jessie W. Strang, May D. Stranger, I. D. Stronach, P. W. Tait, Ruth M. A. Tait, Isabella Taylor, Florence L. Telfer, R. V. Thomas, C. M. Thompson, C. B. Thomson, J. Thomson, Muriel J. Thomson, H. G. Triay, Annie R. Turnbull, Kathleen M. Turner, J. Waiggowsky, Georgina Waters, †Annie E. Webster, Christian Mary B. Welsh, Winifred Wight, Doris S. Williams, H. H. Wright, A. D. MacC. Young.

* Passed with first class honours.
† Passed with second class honours.

D.P.H.—G. G. Allan, Dora W. Gerrard, Mary H. M. Gordon, Margaret Gray, Helen R. T. Hood, J. S. Macbeth, Agnes B. MacGregor, Florence E. M'Kenzie, Janetta J. Powrie, Margaret M. Proudfoot, G. Stewart, J. D. Stewart.

Fellowships and Prizes.

The following fellowships, scholarships, prizes, etc., were presented:

Thesis Gold Medallists: James Elvins M'Cartney, M.D., and Walter Quarry Wood, M.D., Ch.M. The Cameron Prize in Practical Therapeutics: Frederick Gowland Hopkins, M.A., M.B., D.Sc., F.R.S., Professor of Bio-Chemistry in the University of Cambridge. The Syme Surgical Fellowship: Norman M'Omish Dott, M.B., Ch.B. The Gunning Victoria Jubilee Prize in Pathology: James Elvins M'Cartney, M.D. The Gunning Victoria Jubilee Prize in Physiology: Eric Haldane Ponder, M.B., Ch.B. The Ettles Scholarship and Leslie Gold

Medal: Joseph Owen Kelly, M.B., Ch.B. The Allan Fellowship in Clinical Medicine and Clinical Surgery: Bruce Mackenzie Dick, M.B., Ch.B. The Stark Scholarship in Clinical Medicine: Adam Cairns White. The M'Cosh Graduate's and Medical Bursaries: Harold Keith Corkill, M.B., Ch.B. The Beaney Prize in Anatomy and Surgery: Bruce Mackenzie Dick, M.B., Ch.B., and Thomas M'Walter Millar, M.B., Ch.B.—equal. The Mouat Scholarship in the Practice of Physic: Carl Hercules Fouché, M.A., M.B., Ch.B. The Conan Doyle Prize: Carl Hercules Fouché, M.A., M.B., Ch.B. The Annandale Gold Medal in Clinical Surgery: Ian Gordon Cameron, M.B., Ch.B. The Buchanan Scholarship in Gynaecology: Bruce Mackenzie Dick, M.B., Ch.B. The James Scott Scholarship in Midwifery: Florence Lindsay Telfer, M.B., Ch.B. The Scottish Association for Medical Education of Women Prize: Jessie Eeles, M.B., Ch.B. The Dorothy Gilfillan Memorial Prize: Jean Margaret Thomson Connochie, M.B., Ch.B. The Wellcombe Medals in the History of Medicine: Gold Medal, Thomas Ferguson, M.B., Ch.B.; Silver Medal, Frances Agnes Redhead. The Pattison Prize in Clinical Surgery: David Grieve. The Wightman Prize in Clinical Medicine: William Reginald Levie, M.B., Ch.B. The Cunningham Memorial Medal and Prize in Anatomy: Sidney Elizabeth Croskery, B.Sc. The Whiteside Bruce Bursary: George Brown.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examinations indicated:

M.D.—BRANCH I (*Medicine*): Dr. G. Churcher, J. Fanning, W. H. Grace, F. W. Hamilton, D. Hunter, Kathleen McC. McKeown, A. G. Maitland-Jones, F. N. Moos, Jal P. Padshah, M. J. T. Wallis, F. E. S. Willis.
BRANCH II (*Pathology*): Charlotte I. Fox.
BRANCH IV (*Midwifery and Diseases of Women*): G. F. Cooke, P. H. Mitchener, Lily D. Taylor, L. H. W. Williams.
BRANCH V (*State Medicine*): F. A. Knott, J. V. A. Simpson.
BRANCH VI (*Tropical Medicine*): C. V. Boland, H. Hingston.
M.S.—BRANCH I (*Surgery*): J. G. Jones.

Chair of Pathology at Guy's Hospital.—Professor Adrian Stokes, D.S.O., O.B.E., M.D.Dubl., F.R.C.S.I., has been appointed to the Sir William Dunn Chair of Pathology tenable at Guy's Hospital Medical School. Professor Stokes served during the war in the R.A.M.C., and was for some time in charge of the pathological work in the 2nd Army in France. He was particularly concerned in the elucidation of the nature of the form of infective jaundice known as spirochaetosis ictero-haemorrhagica, a subject upon which he wrote in association with Dr. J. A. Ryle in this JOURNAL in 1916 (vol. ii, p. 413). Since 1919 he has been Professor of Bacteriology and Preventive Medicine in University of Dublin. Two years ago he worked with the Rockefeller Commission on Yellow Fever in Nigeria.

Histology.—The title of Reader in Histology has been conferred on Dr. C. D. Da Fano, M.D., L.D., Lecturer in Histology at King's College, and the title of Reader in Morbid Histology on Dr. G. W. de P. Nicholson, M.D., M.A., Lecturer in Morbid Histology at Guy's Hospital Medical School.

Out of the Thomas Smythe Hughes Medical Research Fund grants have been made for 1922–23 as follows: To Miss C. L. Houlton, M.D., B.S., of the London School of Medicine for Women, £100 for an investigation of vaginal secretions, with a view to the discovery of some prophylactic method for the prevention of puerperal infection. To Mr. V. R. Khanolkar, M.B., B.S., B.Sc., of University College Hospital Medical School, £25 for an investigation of the presence of non-specific antibodies against proteins, with a view to further insight into the nature of non-specific immunity.

Committee of Medical Members.—The Committee of the Medical Members of the Senate have elected Mr. Raymond Johnson, O.B.E., B.S., F.R.C.S., to be their chairman for 1922–23, in succession to Mr. H. J. Waring, M.S., F.R.C.S., who has been elected Vice-Chancellor.

UNIVERSITY OF MANCHESTER.

The following appointments have been made: Lecturer in Practical Surgery, Mr. Charles Roberts, M.B., B.S. (London); Clinical Lecturer in Mental Diseases, Mr. J. A. C. Roy, M.B., Ch.B., F.R.C.S. (Manchester).

The Platt Physiological Scholarship has been awarded to Mr. Harry Zwarenstein.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT a meeting of the College held on July 24th the following successful candidates, having passed the requisite examinations, were admitted Fellows:

J. Allison, J. A. Berry, G. S. Davidson, D. G. Duff, W. F. T. Haultain, W. O. Lodge, J. Macarthur, J. M. Macpherson, V. Mahadevan, H. I. Marriner, J. B. Morrison, F. F. Petersen, Margaret S. Purce, W. Waddell, W. O. Walker, C. H. Wan, M. White, R. H. Williams.

Dr. J. Rao, L.M. and S.Univ. Calcutta, having passed the requisite examination, was admitted L.R.C.S.Ed.

CONJOINT BOARD IN SCOTLAND.

Final Examination.

THE following candidates, having passed the Final Examination, were admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P.and S.G.:

W. H. Lloyd-Wronsley, Chong Tak Nam, A. K. Tateson, A. C. A. Fernando, M. G. L. Lucas, J. M. Somasundrum, W. A. B. Clark, M. Macleod, M. Witkin, C. W. de Villiers-Pritchard, Agnes T. Martin, W. A. McE. Stewart, H. J. Appleyard, W. Gray, W. D. Oswald, I. B. Cummings, and H. G. F. Cubitt.

CONJOINT BOARD IN IRELAND.

AT the Conjoint Examinations in Ireland by the Royal College of Physicians and the Royal College of Surgeons the following candidates have been successful:

FINAL PROFESSIONAL EXAMINATION.—M. P. Moran, E. M. Dodd, Henrietta C. Hall, J. F. O'Connell, F. E. Preston, W. E. Rutledge, W. Sherowitz, R. T. Taylor, The O'Rourke, J. S. Matthews, Maggie M. Nelson, Gladys C. M. Marshall, J. J. A. Loftus, D. S. Magner, J. T. Barrett, M. Levy, V. E. Lee, P. J. Greene, J. A. Flynn, P. Fleming, S. S. Brass, H. T. Beggs, Mary F. J. Connolly.

D.P.H. OXON., PART I: *Correction.*

Mr. Clement Dunscombe calls attention to the misspelling of his name in the pass list published under the heading "University of Oxford" in the JOURNAL of July 15th (p. 111). It should be as now printed.

Obituary.

SIR EDWARD MALINS, M.D., M.Sc., F.R.C.P.LOND.,

Consulting Obstetric Physician, Birmingham General Hospital; Emeritus Professor of Midwifery, University of Birmingham.

WITH regret we record the death in Birmingham on July 23rd of Sir Edward Malins, after a long illness. He was the youngest son of Dr. Samuel Malins, one of the founders of the Liverpool School of Medicine, and came of a family long associated with the city of Birmingham. He was born in Liverpool in December, 1841; he received his early education at King Edward's School, Birmingham, whence he went to Edinburgh University, where he took the degrees of M.B., C.M. in 1866, and that of M.D. in 1869. He became a Fellow of the Royal College of Physicians of London in 1902, and received the degree of M.Sc. from the University of Birmingham in 1901.

In 1872 he settled in Birmingham, and in 1877 was appointed obstetric physician to the General Hospital, a post which he held until 1903, when he was elected consulting physician. Throughout his life he took an active interest in the Birmingham Medical School and in the establishment of the Birmingham University. When the old medical school of Queen's College was transferred to Mason College in 1894 he was appointed professor of obstetrics, and continued to hold the chair when the College was merged in the University. He was professor altogether for eighteen years. He retired in 1912, and shortly afterwards was made Emeritus Professor. For five years he was secretary of the University of Birmingham Graduates' Club and its president in 1886 and in 1913. He held many other appointments in and about the city; he was surgeon to the Birmingham and Midland Hospital for Women, consulting obstetric physician to the Hammerwick Cottage Hospital and the Corbett Hospital, Stourbridge. He also took an active part in local medical organizations and was president of the Midland Medical Society 1882–83, and president of the Birmingham Branch of the British Medical Association in 1901. He was president of the Section of Obstetrics and Gynaecology at the annual meeting of the British Medical Association at Birmingham in 1911. His energy and capacity carried his influence beyond the city; he was examiner in midwifery and gynaecology to the Conjoint Board and the Universities of Manchester and Bristol, and had been president of the Obstetric Society of London.

His activities, however, were not limited to his professional work, exacting though it was. In 1893 he was appointed a justice of the peace for the county of Warwick, and in 1896 first filled the like office in the city of Birmingham. He was also a Governor of King Edward's School, and numbered among his past appointments: Chairman, Wm. Dudley Trust; Bailiff, Lench's Trust, 1908; Sands Cox Trustee since 1906; and for many years Vice-President of the Birmingham Conservative Association.

ARCHIBALD CAMPBELL MUNRO, M.B., D.Sc., M.R.C.P.EDIN.,

Medical Officer to the County of Renfrew.

EVERYONE connected with public health in Scotland will learn with sorrow that Dr. Campbell Munro has passed away. He was among the most prominent of the group of men who, under the newly passed Local Government Act of 1889, set to work to revolutionize the sanitation of rural Scotland. His own area was the non-burghal part of the thickly populated county of Renfrew. In those days it was necessary for the new medical officers not merely to justify their own unwelcomed official birth, and educate their masters in the administration of existing laws, but to press also for extended powers, and at the same time to block legislative proposals

ostensibly progressive, but in effect retrograde. In all such efforts the Renfrewshire medical officer bore a splendid part. The outcome of the crusade was embodied in the Local Government Amendment Act of 1894, commonly called the Parish Councils Act, and the Magna Charta of Public Health in Scotland, the Act of 1897. As a preliminary to that great achievement it had been found necessary to block a burgh police bill which contained as much public health reform as would have satisfied the towns for a long time, and would have deprived a complete health measure for the whole community of the stimulus of burgh support. Dr. Munro was no less effectual in helping to hinder the one measure than in advancing the others, and in the end the public health part of the burgh police bill was unwillingly dropped by the Government, who found that the block would not be removed on any lower terms. It was stimulating and exciting work to those engaged in it.

Within his own area Dr. Campbell Munro made a marvellous change in respect of the elementary necessities—water supply, drainage, scavenging, house sanitation, and isolation hospitals—whilst in later years he followed this up in planting and fostering the newer developments of public health. No detail was so insignificant as to escape his personal attention: his energy was unbounded, and his monument to-day is to be found in the health of the county as he left it on his retirement some three years ago. Much of his work was done under the serious handicap of poor health, but physical weakness never evidenced itself in duty neglected or incompletely performed. He was a good pedestrian and a keen cyclist, so that much of his travelling was done independently of railway or motor conveyance. He was a clear and convincing speaker, and a very effective witness before a law court or a parliamentary committee.

When he retired he went to live in Edinburgh, of whose University he had been an honours graduate in 1874. Up to the end he continued to take a keen interest in the welfare of the Scottish Society of Medical Officers of Health, whose president he had been, and he was a valued member of the Scottish Midwives Board. He was a past president of the Glasgow and West of Scotland Branch of the British Medical Association and of the Sanitary Association of Scotland. The deepest sympathy of those who knew him goes out to his wife and family in their irreparable loss. One of his sons—his own namesake—is in the Indian Medical Service.

DR. JOSEPH WILLIAM GAINER of Thrapston, who died recently, was born at Stonehouse, Gloucestershire, in 1858. He received his medical education at Edinburgh University, where he graduated M.B., C.M. in 1886 and M.D. in 1906. He began practice at Thrapston in 1888. He was medical officer and public vaccinator for the A district and workhouse of the Thrapston Union, certifying factory surgeon and honorary surgeon to the St. John Ambulance Association. Dr. Gainer took great interest in singing and was the first president of the local glee society. He suffered from a severe illness in 1919, which weakened his constitution and caused him to relinquish some of his professional work to his son Dr. Eric Gainer. In 1919 he was appointed a county magistrate and frequently sat on the Thrapston Bench. He was a member of the Northamptonshire Division of the British Medical Association and was held in high esteem by his private patients and by those whom he attended in his public capacities. He is survived by two sons and two daughters.

A MEDICAL centenarian, Dr. CHARLES HENRY BROOKING, died at Paignton on July 16th. He was born on April 3rd, 1822, and received his medical education at Guy's Hospital. He took the diplomas of M.R.C.S. and L.S.A. in 1843, and graduated M.D. St. Andrews in 1856. He formerly practised at Brixham, and is one of the last of the Volunteers of 1852; he commanded the Artillery Volunteers at Brixham in 1859. On the occasion of his attaining his hundredth year the Council of the Royal College of Surgeons of England sent congratulations to Dr. Brooking.

IN the death of Dr. JAMES EDWARDS the north of Liverpool has lost one of its leading medical practitioners. He had been in indifferent health for some time past, so that his decease was not unexpected. Dr. Edwards was the fourth son of Principal Lewis Edwards, of Bala College, a minister of eminence in the Methodist Church. He studied at St. Bartholomew's Hospital, and became M.R.C.S. in 1879, afterwards taking the Edinburgh L.R.C.P. and L.M. in 1881. He settled down in the north of Liverpool shortly after qualification, and through his assiduity and urbanity soon acquired a lucrative practice. He was a staunch advocate of temperance, and took a great interest in medical missionary work in connexion with the Welsh Calvinistic Methodist Church. He leaves a widow and a family of three sons and two daughters. One of the sons, Dr. Ivor Charles Edwards, has been in practice with his father since 1912.

DR. JACQUES BERTILLON, who had been statistician to the City of Paris for thirty years, died on July 4th in his 71st year. He was the son of Louis Bertillon, statistician, and the brother of Alphonse, esteemed the founder of anthropometry, who died a few years ago. In the course of his statistical work Jacques Bertillon became impressed by the steady decline of the birth rate in France, and in 1896 established a society to stimulate interest in the subject. In 1918 he founded a bi-weekly journal, *La femme et l'enfant*. During the war he sought to impress on the French Government the importance of collecting and studying the statistics of disease among the forces in the field, and was appointed director of the medico-chirurgical statistics of the French army.

THE well-known radiologist Dr. KEATING HART, who died in Paris last January, has been created posthumously a Knight of the Legion of Honour.

The Services.

PENSIONS CLAIMS.

WE are requested by the Ministry of Pensions to state that disabled officers, nurses and men, and the widows and dependants of those deceased, who desire to appeal to the Pensions Appeal Tribunal against the rejection of claims to pension, must do so, on the prescribed form, within a year after the date of the notification by the Ministry of the rejection of the claim, or before August 19th, 1922, whichever is the later. Any new claim to pension in respect of disablement under any Warrant, Order in Council, or Order administered by the Minister of Pensions, must be made within seven years after the claimant was discharged, or before September 1st, 1928, whichever is the earlier.

HONORARY SURGEONS TO THE KING.

THE following officers are appointed Honorary Surgeons to the King: Major-General B. H. Deare, C.I.E., I.M.S., vice Major-General the Hon. W. H. B. Robinson, C.B., I.M.S., deceased; Colonel H. A. Smith, C.I.E., vice Colonel J. Garvie, I.M.S., retired.

DEATHS IN THE SERVICES.

Captain Sadanala Bashiam Venugopal, Indian Medical Service, died at Poona on May 13th, aged 34. He was educated at Madras University and Guy's Hospital, and took the M.R.C.S. and L.R.C.P. London in 1914. He entered the I.M.S. as lieutenant on August 1st, 1914, and was promoted to captain on March 30th, 1915. He served on the North-West Frontier of India in operations against the Mahand Waziris in May 1917, and against the Warri tribe in March–April, 1918.

Medical News.

A MEETING of the Dental Board of the United Kingdom was held on July 14th, with the Right Hon. F. Dyke Acland in the chair. It was announced that Mr. James H. Stirling had been nominated by the Lord Lieutenant of Ireland as a member of the Board in the place of the late Mr. John Sinclair. The Board passed a resolution informing the Minister of Health that in its view any hospital approved by one of the licensing bodies in the United Kingdom for the instruction of medical students, and the dental departments of any university of the United Kingdom, together with a list of schools of dentistry which were enumerated, should be approved under Section 5 (5) of the Dentists Act, 1921. It was resolved also that information should be obtained from the deans of dental schools regarding any students who have been unable to obtain a qualification in consequence of the expiry of Government grants prior to passing their final examinations, with a view to giving financial assistance in deserving cases. The Board also resolved that in the case of applicants for registration who were unable to comply with the requirements of the Act in consequence of service in His Majesty's Forces, it would be willing that July 28th, 1922, should be substituted for July 28th, 1921, where mentioned in the Dentists Act, 1921, in connexion with such applications.

AT the present time the Royal College of Veterinary Surgeons has the sole right to hold examinations for admission to membership of the College. The Universities of London and Liverpool have sought the right to amend their charters so as to conduct corresponding examinations. The matter was argued before the Committee of the Privy Council on Wednesday, July 19th, Lord Dunedin, Lord Trevethin, and Sir Arthur Boscawen acting as the tribunal. Mr. J. D. Talbot, K.C., and Mr. Colam, K.C., were leading counsel for the College, and Mr. Tomlin, K.C., was for the University. The Committee came to the conclusion that the modification proposed by the Universities was *ultra vires*, and that the object sought could only be effected by legislation.

THE International Labour Conference (League of Nations) in a convention of last year laid down that after November, 1927, with certain exceptions as to railway stations and industrial buildings, white lead shall not be used in the internal painting of buildings. The Government of Tunis, unwilling to wait so long a period, have decided that within a year from now the use of white lead shall be prohibited in that country in external as well as internal painting, and that white lead shall not be used in other operations except in the form of a paste. Further, that dry scraping and dry rubbing down, which is believed to be responsible for much of the lead poisoning occurring among coach painters, shall not be allowed.

THE first prescribed examination under the Dentists Act, 1921, was held at Manchester on July 11th and 12th, when 65 candidates presented themselves and 45 passed. Of the 15 war service candidates 4 satisfied the examiners in Part (1) only, and one in Part (2) of the examination.

THE tenth Italian Congress of Paediatrics will be held at Milan from October 1st to October 4th, when the following subjects will be discussed: Active and passive immunization against diphtheria, introduced by Dr. Pincherle of Bologna and Dr. Frontali of Florence; prophylaxis of tuberculosis in childhood, introduced by Professor Cannata of Messina. Further information can be obtained from Dr. Grassi, 9, Via Commenda, Milan.

PROFESSOR W. DUNBAR, a well-known authority on hygiene, has recently died at Hamburg.

THE house and library of the Royal Society of Medicine will be closed during August.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

INCOME TAX.

"W. G." purchased a 29.5 Hudson car in 1920 for £995. He has just bought a new F.I.A.T. for £550, the agents allowing £330 for the Hudson.

*** The amount allowable does not exceed the out-of-pocket cost of replacement, and consequently "W. G." cannot claim more than £550 − £330 = £220. That sum is a professional expense of the year in which the transaction took place, and presumably will not affect his average income tax liability for the present financial year.

"W. H. L." has purchased a partnership, and is told that he must pay his share of income tax on the debts collected and handed over to his predecessor. He asks whether this is correct.

*** Yes. The practice is evidently assessed to income tax on the usual basis of cash receipts—that is, the earnings of any particular year are measured by the cash received in that year instead of by the value of the fees booked. Although the tax to be paid by "W. H. L." is measured by the receipts from his predecessor's work, the "income" that is being assessed is the result of his own work in the year for which the assessment is made.

AN OLD WIFE'S FABLE.

DR. DAN MCKENZIE (London) writes: In reply to Dr. J. B. Hellier's question regarding the advice given to a newly confined woman "to go upstairs before going down," permit me to say that this is a very general superstitious practice, dependent upon sympathetic magic. If the mother or the baby or the invalid goes *up*, his or her health will also go up, and vice versa. There is of course no rational basis for these quaint ideas, but we are all subject more or less to their influence and must constantly be on the watch to avoid their power, for they spring from the same weedy corner of the human mind as what we know so well in scientific matters as "the personal element." If Dr. Hellier would like further information on this subject he will find enough in Sir James Frazer's *Golden Bough* to keep him busy for many weeks.

LETTERS, NOTES, ETC.

PSYCHO-ANALYSIS IN EPILEPSY.

DR. S. F. MCDONALD, M.R.C.P. (Brisbane), writes: A very great number of statements are being made at present praising the value of psycho-analysis in many forms of nervous disease. Having had a little experience of the extreme value of such treatment I am the more anxious that it shall not be allowed to gain disrepute by wild statements such as that at present being made about epilepsy. Those of us who have the misfortune to deal with epilepsy are only too anxious for any help at all in the matter—but we want solid facts. To say that an epileptic fit is a withdrawal from reality and a means of escape sounds splendid, but does it help us in treatment? We are told that this has been demonstrated by analysis: has it been demonstrated in the case of children?—for example, in a child of 5 with alternating attacks of *grand* and *petit mal*, which are only restrained by luminal. Again, in congenital syphilis one sees epileptiform attacks, indistinguishable from true epilepsy, which disappear with anti-syphilitic treatment. Can I extract from any of those now practising psycho-analysis even a few figures showing number of cases analysed, finding and results from analytic treatment? Every other method must submit to such a test: why not psycho-analysis?

RAT-BITE FEVER.

MR. V. N. MEHTA (Bombay Presidency, Viramgam) writes: I had recently a case of rat-bite fever, presenting all the typical symptoms after an incubation period of fifteen days—namely, swelling and inflammation at the bitten part, formation of vesicles, erythematous rash over the arm and abdomen, shooting pains in the joints, and a rise of temperature which continued for about a week, ranging from 104.5° to 100°. Throughout neo-salvarsan was to be injected, but owing to the high fever it was delayed till the apyrexial stage after a week, when 0.45 gram novarsenobillon was injected intravenously and the patient has since made very satisfactory progress. Our correspondent concludes by asking whether neo-salvarsan, in cases of rat-bite fever, can be injected during the pyrexial stage, and in that case up to what temperature it may be considered quite safe to inject?

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 29, 32, 33, and 34 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 30 and 31.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *64*.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.